OCTOBER, 1954

Products Finishing

Electropolishing Titanium .....Page 26
Finishing Clinic .....Page 34
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Finishes on *Metal* Products

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THE NO. 1 GREASELESS COMPOSITION

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PRODUCTS FINISHING
OCTOBER, 1954

Page No.	Name of Manufacturer	Page No.	Name of Manufacturer

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CO. ADDRESS_____

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NAME_____ TITLE_____

Your Monthly Source For Finishing Ideas

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PRODUCTS FINISHING
OCTOBER, 1954

Page No.	Name of Manufacturer	Page No.	Name of Manufacturer

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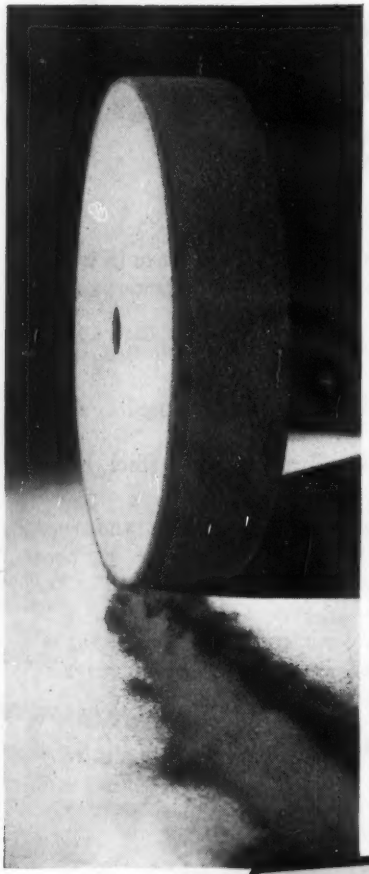

Norton ALUNDUM abrasive grain is extremely hard, tough and sharp. It is uniform in chemical composition, crystal structure and grain size — no oversize grains to mar the surface, no undersize grains to loaf on the job. Its high capillarity, produced by special Norton processing, means easier wetting with the glue and assures stronger, faster cutting, longer lasting wheel heads.

And you can get ALUNDUM *grain in exactly the grain shapes and surface treatments you need to add the product-improving, money-saving "Touch of Gold" to every step of polishing, with every type of wheel and on every metal.*

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Further helpful information on setting up — including the selection of ALUNDUM grain, preparation of glue, use of cement, drying operations, wheel types, polishing different metals, etc. — is contained in the Norton booklet *Setting Up Metal Polishing Wheels and Belts.* Your Norton Distributor can supply it, and can make quick deliveries of ALUNDUM grain. Or write to NORTON COMPANY, Worcester 6, Mass. Distributors in all principal cities, listed under "Grinding Wheels" in your classified phone directory. *Export:* Norton Behr-Manning Overseas Incorporated, Worcester 6, Mass.

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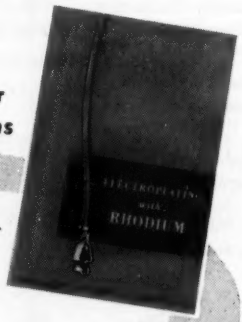

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The versatility of DeVilbiss Transverse Automatics lets you combine many different parts and components for precision, automatic painting in gang runs – the kind of painting that, in the past, seemed possible only by hand spraying! Not only is automatic spraying faster, but you enjoy *big cost reductions* as well!

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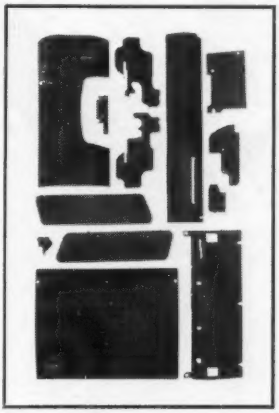
A call to your nearest DeVilbiss representative will bring a qualified technician to survey *your* production painting. He will let you know if your operations are adaptable to DeVilbiss automatic spray-painting equipment – and its big savings. Call today!



Objects of various sizes and shapes like these receive a uniform finish in a gang run on a DeVilbiss automatic spray machine.

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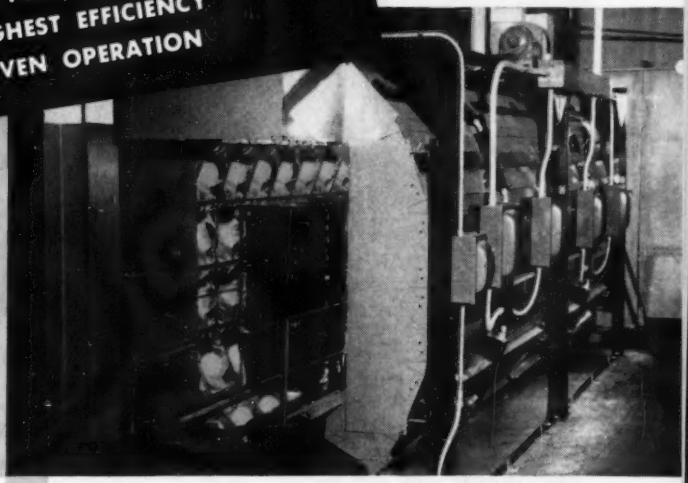

Pictured at right is Fostoria oven at J. D. Street Co., St. Louis. Various color finishes are baked on steel drums at the rate of one per minute. Operating cost is only 48c per hour at 1c K.W.H. Oven space only 75 sq. ft. More durable finishes with time, space, and cost savings have resulted from this reasonable cost oven investment.

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Fastest heat transfer. Greatest output to input. Instant action.

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Most production for oven size. May be ceiling mounted.

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No by-products of combustion. No condensation.

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Foremost engineering "know-how" and service.

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Send for complete facts

Write for this brochure of technical facts and case histories of many Fostoria oven installations. Tell us your particular problem and we will include data directly applicable to your operation.

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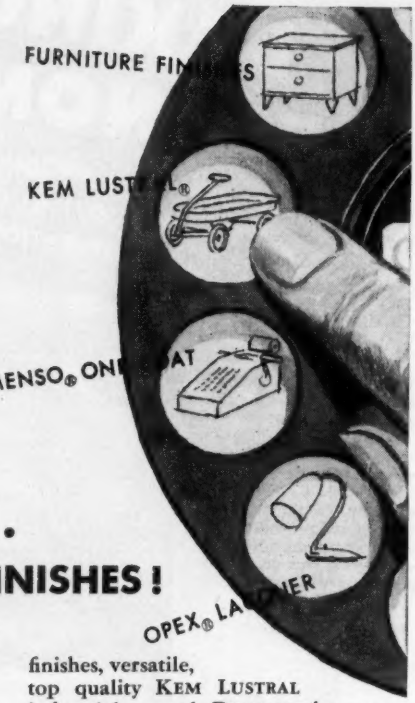

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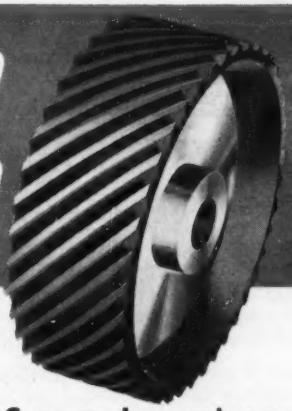
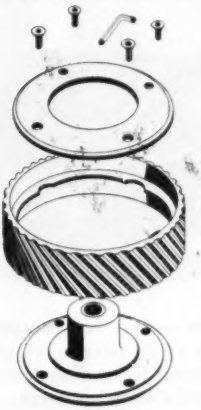


Chicago Rubber Company's amazing new R54 contact wheel cuts better—faster—longer and will substantially reduce your grinding and polishing costs 3 ways.



This precision machined and accurately balanced wheel is easily and quickly knocked down and reassembled for tire replacement or change.

- Replace only the rubber tire when necessary instead of the entire wheel.
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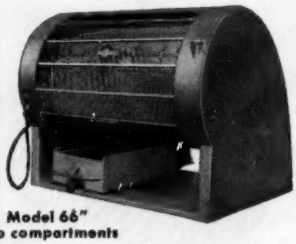

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a tougher, more corrosion-resistant primer for metal lawn furniture . . . *at lower cost*

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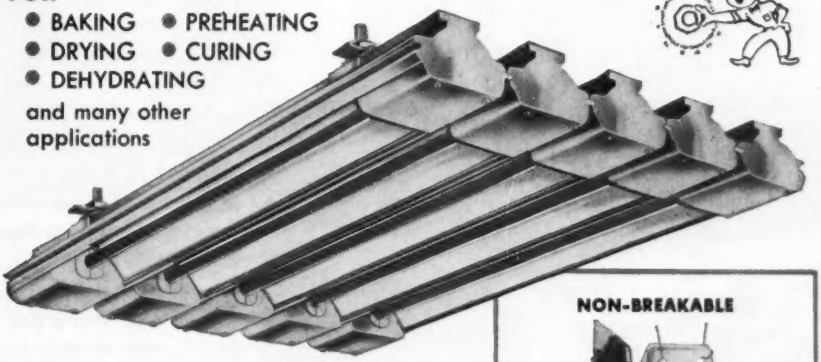
- DEHYDRATING

and many other applications



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2. **Uniform blanket of heat without hot spots.**
3. **Infinitely variable heat, adjustable to the work from zero to 100% range, provided by dial controls.**
4. **Quick, low cost oven construction by interlocking units into desired assemblies.**

In addition—all-metal Chromalox Radiant Heaters are unbreakable and immune to shock, vibration, steam and splashed liquids; safe with volatiles.

Why not check this new production line tool? See how it can fit into your finishing operations.

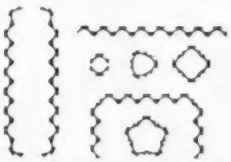
Send for complete Application File

You'll get details on many jobs Chromalox Radiant Heaters are doing in industrial plants; and you'll likely find application ideas which can point the way to added savings and increased production.

NON-BREAKABLE

There's nothing to break—nothing to shatter and contaminate work in process when Chromalox Radiant Heaters are on the job.

VERSATILE APPLICATION



Cross-section views of a few of the many oven designs possible with Chromalox Radiant Heaters.

IC-53

Chromalox electric heat for modern industry

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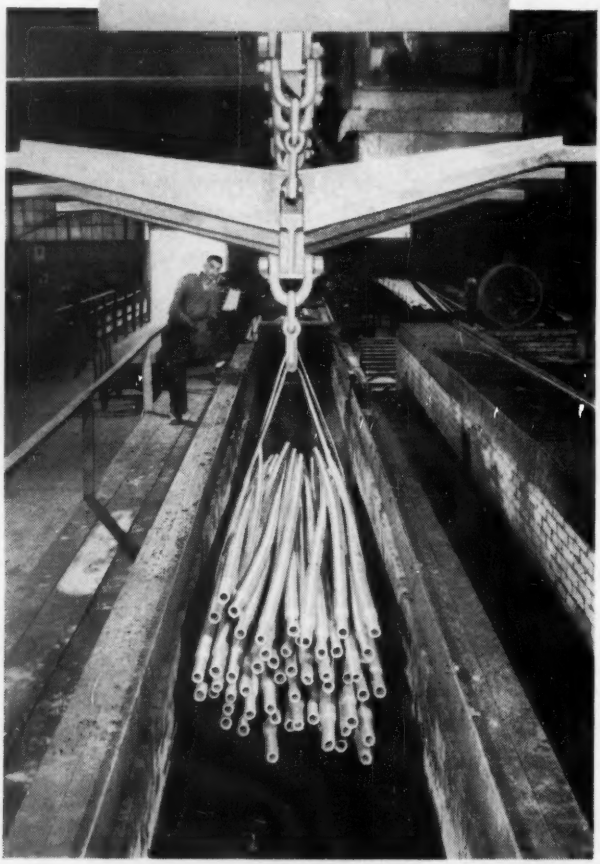
TANKS WIN EVERY BATTLE

Industry wipes out corrosion with Firestone Exon Resins



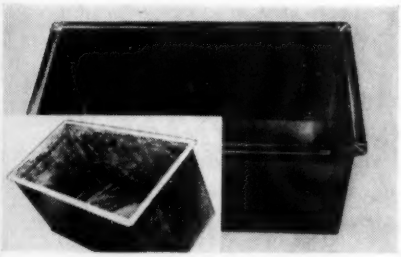
Corrosion costs kept pyramiding at the Globe Steel Tubes Co., Milwaukee, Wisconsin. At temperatures of 80° to 90°, solutions of 20% nitric acid-hydrofluoric acid quickly ruined each type of costly lining tried in the 47-foot "pickling tank." After exhaustive tests of every available material, Globe engineers finally hit upon Vyflex L-10* made from Exon 900 series resins. This durable vinyl lining ended their corrosion problem. Installation was quick, simple and less costly than the linings previously used. Subsequent maintenance and replacement costs have been eliminated!

*Vyflex L-10, made from EXON 900 series resins is a product of Kaykor Industries, Inc. Division of Kaye-Tex Mfg. Corp. Yardville, New Jersey

Installation by National Acid Proofing Co. Tinley Park, Ill.

NOTE: Firestone supplies the resin only, does not manufacture the end product.

AGAINST CORROSION

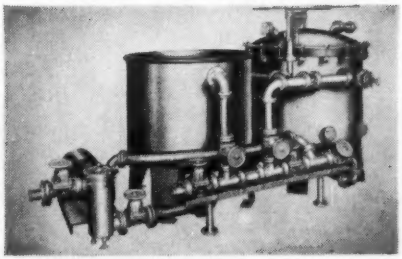


★ Corrosive chromic acid plating solutions destroyed in 6 months protective surface applied at the Tripp Plating Co., Buffalo. At 150° operating temperature, the acid has yet to affect tanks since they were lined with Vyflex L-10*.

Installation by Metal Cladding Inc., Buffalo, N.Y.

★ At Hoffmann-LaRoche Plant in Nutley, N. J., Vyflex L-10's* versatility permitted *on the spot* relining, without dismantling the huge 6′ x 6′ x 10′ bleach tanks. Thus, installation costs and "down" time were greatly reduced.

Installation by La Favorite Linings, Inc., Hawthorne, N. J.



★ Standard 4200 G.P.H. chrome plating solution filter with Vyflex L-10* linings, made by Industrial Filter & Pump Mfg. Co., of Chicago. This leading filter manufacturer selected Vyflex L-10* linings as part of the original construction for this unit.

The simple fact is: you can stop corrosion. The tank liners shown above are based on only one of the many Exon resins developed by Firestone engineers to answer corrosion problems.

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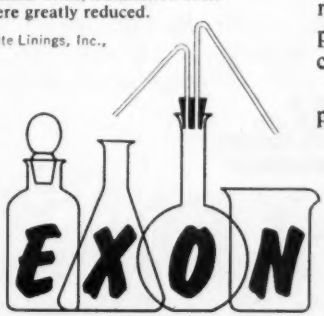

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Pf editorial

Vol. 19, No. 1

OCTOBER, 1954

New Market for Metal Finishes

The Finishing Industry, as represented by both electroplating and paint interests, stands to benefit by the results from development work recently reported by William C. Stolk, president of American Can Company. Mr. Stolk announced that his company has developed and is producing a specially-designed flat-top can for carbonated beverages. It is estimated that the volume of cans produced may reach 12 to 13 billions cans per year.

The background of work leading up to the successful introduction of the carbonated beverage can has included the development of specifications for the correct weight of tinplate, specially designed can ends and new and stronger side seam, and special inner can coatings.

Steel, electroplated with tin, forms the basis for the new product. Then, attractive colored labels must be printed on the tin plated sheets, and baked. Finally, paint or varnish coatings for the can interiors must be applied. These processes are all finishing processes, involving electroplating, paint finishing and baking.

For the paint finish manufacturer as well as the can manufacturer, can coatings are specialized finishes. In pointing out the exacting nature of the formulation of a proper can coating, W. E. Moore, chief chemist for the Andrew Brown Co., Los Angeles, states that almost every type of food or beverage requires a special type of can lining to preserve the flavor of the product. Mr. Moore states that his company formulates over 50 different types of can coatings, and expects that number to increase to meet new requirements. Mr. Moore cites as reasons for the increased use of can coatings the need of many types of canned foods or beverages for a coating to prevent a "metallic" change in product flavor, and, as indicated above, the new practice of bottling soft drinks in cans.

While the increased use of cans for beverages represents an additional source of revenue for finish and finishing equipment manufacturers, the new development also serves as another example of the versatile, ever-changing, dynamic nature of the Finishing Industry as a whole.

Ezra A. Blount

—EDITOR

Electropolishing

Dr. Sakae Tajima, a native of Yokohama, attended Tokyo Imperial University where he specialized in electrochemistry. He was awarded the Doctor of Science degree in 1943.

He served as a research engineer in the fields of metal finishing and corrosion at the National Central Aeronautical Research Institute and the National Railway Technical Research Institute, Tokyo. For a time he was a professor in the Metropolitan College of Science and Engineering and in 1948 he joined the Tokyo Metropolitan University as head of the Electrochemical Laboratory.

He is the author of some fifty research papers in the fields of metal finishing, corrosion, metal refining, and ion exchange membranes. In 1952 his most recent book, "Electropolishing and Chemical Polishing," was published. He was awarded a National Blue Ribbon medal from the Japanese Government for his contribution to the fundamental study and the popularization of electropolishing in Japan.

Dr. Tajima has served as the editorial secretary of the Electrochemical Society of Japan, and is technical counsellor to the Japanese Electroplating Society, a member of the Board of Trustees of the Metal Finishing Society, and a member of the Electrolytic Refining Committee of the Electrochemical Society.

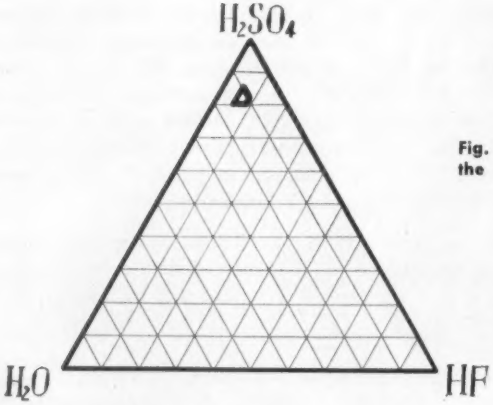

Fig. 1—Solution composition diagram for the sulfuric-hydrofluoric acid electropolishing bath.

Titanium

By SAKAE TAJIMA and TAKEMI MORI

Laboratory of Electrochemistry
Tokyo Metropolitan University
Tokyo, Japan

PF FEATURE

The electropolishing of titanium using the perchloric-acetic acid bath has been described by Sutcliffe and his co-workers.[1] According to Jacquet,[2] the method is not suited for alloys containing carbon and silicon.

Jacquet[3] performed various experiments and recommended an electrolyte which consists of:

Acetic anhydride	191 cc.
Perchloric acid	46 cc.
Distilled water	12 cc.
Anode current density	200-250 asf.
Voltage	60 volts
Room temperature	

To prevent overheating of the anode, the time of electrolysis should not exceed 45-60 seconds. These methods were developed for use in metallographic examination of titanium and its alloys.

The methods developed by the authors and described here are an attempt to find new baths for commercial use which do not employ perchloric acid.

Electrolytes used for electropolishing other metals and alloys, such as sulfuric, phosphoric, chromic, nitric acids, cyanides and other alkalies, are not applicable to titanium because the metal immediately passivates in these electrolytes if made anodic. On the other hand, fluoride ion attacks titanium violently.

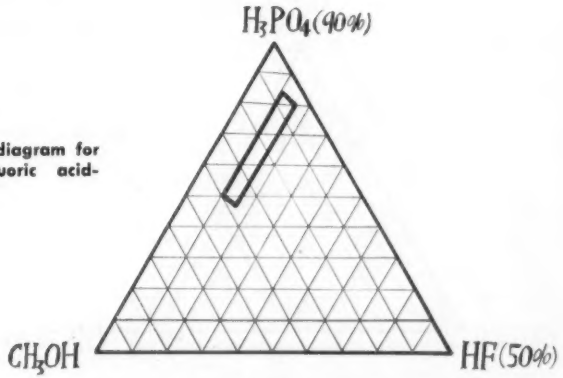

Fig. 2—Solution composition diagram for the phosphoric acid-hydrofluoric acid-methanol bath.

It is known that electropolishing generally takes place in the boundary condition in which anodic passivation and activation occur alternately or simultaneously on the anode surface. If appropriate mixtures of sulfuric, phosphoric or chromic acid (which passivates titanium) and hydrofluoric acid (which attacks it violently) could be determined, then fairly satisfactory commercial electropolishing processes could be developed.

Sulfuric-Hydrofluoric Acid Bath

Titanium is anodically passivated in any concentration of sulfuric acid. When sulfuric and hydrofluoric acids are mixed in appropriate proportions, the anode is favorably activated with appreciable amount of current flow, and electropolished to mirror brightness. When the hydrofluoric acid is in excess, the chemical attack on titanium is severe. Even though the titanium is brightened during electrolysis, the metal is etched when withdrawn from the bath, and there is a violent evolution of hydrogen gas. When the amount of hydrofluoric acid is too small, the anode does not dissolve. After a number of experiments, a diagram of preferable bath composition was determined and is shown in Fig. 1.

The bath composition is:

Sulfuric acid	80-85% by vol.
Hydrofluoric acid (50%	10-18% by vol.
Water	5-8% by vol.
Bath voltage	5-6 volts
Anode current density	500-1000 asf.

The bath composition is rather critical in this sulfuric-hydrofluoric acid system.

Phosphoric-Hydrofluoric Acid Bath

Similarly, mixtures of hydrofluoric and phosphoric acids were made and the limits of electropolishing bath composition determined to be:

Phosphoric acid (90%)	75-80% by vol.
Hydrofluoric acid (50%)	15-25% by vol.
Water	5-10% by vol.
Bath voltage	6 volts
Anode current density	500-1000 asf.

The polish obtained in this bath was inferior to that obtained in the sulfuric-hydrofluoric acid bath.

Phosphoric-Hydrofluoric Acid-Methanol Bath

To prevent chemical attack on titanium by hydrofluoric acid, electrolysis was conducted in a solution in which methanol had been substituted for water. Phosphoric and hydrofluoric acids contain 10 and

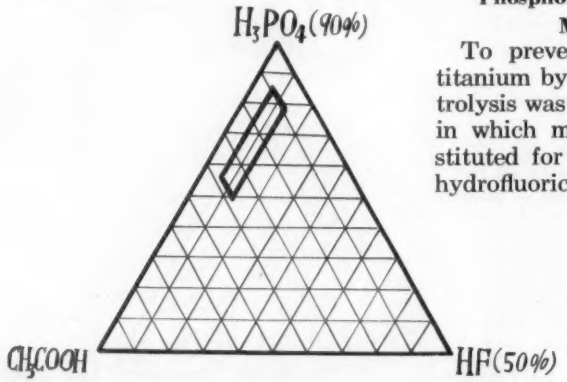

Fig. 3 — Composition diagram for the phosphoric acid-hydrofluoric acid-acetic acid electropolishing solution.

50 per cent water respectively, so the bath may not be regarded as entirely free from water. However, using this bath the pickling action of hydrofluoric acid was inhibited remarkably and the polishing range was extended as shown in Fig. 2.

Optimum bath operating conditions are:

Phosphoric acid (90%)	45-85% by vol.
Hydrofluoric acid (50%)	10-18% by vol.
Methanol	5-40% by vol.
Bath voltage	8-17 volts
Anode current density	500-1000 asf.

An excess of methanol whitens the anode surface and spoils the polish.

Phosphoric-Hydrofluoric-Acetic Acid Bath

Similar results were obtained by using glacial acetic acid in place of methanol.

The optimum bath composition range is shown in Fig. 3.

The electropolishing bath and operating conditions are:

Phosphoric acid (90%)	50-85% by vol.
Hydrofluoric acid (50%)	5-13% by vol.
Glacial acetic acid	8-38% by vol.
Bath voltage	8-10 volts
Anode current density	500-1000 asf.

Phosphoric-Hydrofluoric-Acetic Anhydride Bath

Acetic anhydride was substituted for glacial acetic acid and a diagram of preferable bath composition developed, as shown in Fig. 4. Although the anodic luster of titanium was as good as in the case of the phosphoric-hydrofluoric acid-methanol bath and the range of mixtures fairly wide, the fumes from the bath are obnoxious, and the bath may not be of any practical use.

Optimum electropolishing conditions are as follows:

Phosphoric acid (90%)	57-82% by vol.
Hydrofluoric acid (50%)	11-19% by vol.
Acetic anhydride	8-27% by vol.
Bath voltage	20-30 volts
Anode current density	500-1000 asf.

Chromic-Hydrofluoric Acid Bath

Chromic acid has been used as principal component in electropolishing baths for copper, zinc and brass, and as an addition agent in the solutions for steel and aluminum, whereby the acid plays a peculiar role; namely, suppressing oxygen gas evolution, inhibiting the chemical attack of the electrolyte, and improvement of the polish on

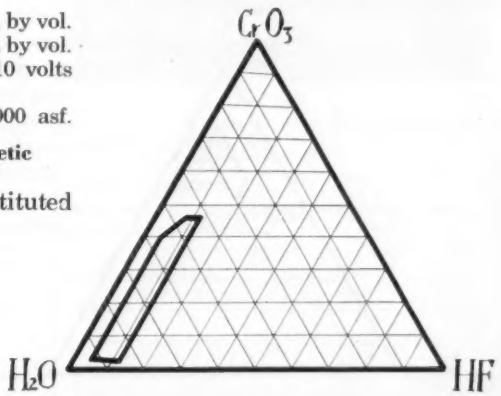

Fig. 4—Diagram of solution composition for the phosphoric acid-hydrofluoric acid-acetic anhydride electropolishing solution.

the metal being processed. Chromic acid proved to be equally effective in electropolishing titanium. When titanium is electrolyzed in a straight chromic acid bath, the anode is immediately passivated due to the strongly oxidizing nature of the acid, but the addition of hydrofluoric acid partially activates the anode, producing an excellent polish. In this bath, the evolution of oxygen at the anode was not seen, or was negligible, and the chemical attack of the hydrofluoric acid on titanium after the withdrawal of the specimen from the bath was negligible. Hydrogen gas evolution was also negligible in spite of the fact that water was a constituent of the electropolishing solution.

The bath composition is not critical and a fairly wide range of mixtures is permissable. The required current density is lower and the resulting bath voltage is low. Addition of phosphoric or sulfuric acids to this bath promotes passivation and is not recommended.

Preferable solution composition is shown in Fig. 5, and the optimum electropolishing conditions are:

Chromic acid	2-45% by wt.
Hydrofluoric acid (50%)	3-12% by wt.
Water	43-95% by wt.
Bath voltage	3-7 volts
Anode current density	200-500 asf.

One optimum solution composition, expressed in different terms, is:

Chromic acid	400 g/l
Hydrofluoric acid (160 cc. as acid solution)	80 g/l

Since the bath does not contain any organic solvents, the bath voltage is lower and the bath is suited for commercial use.

Discussion

Although the several new electropolishing baths for titanium which were investigated appeared promising for commercial use, the mechanism of the phenomena has not yet been investigated in detail. It was observed that polishing did not occur when the anolyte was colored yellow. When polishing occurs, the anolyte is colored violet. Therefore, titanium is anodically brightened when it goes into solution as the trivalent ion.

At first, to prevent the pickling action of fluoride ion on titanium, low temperature electrolysis was tried and a comparison of samples run at 60 and 20 deg. F. was made. The local temperature rise near the anode was remarkable and the expected results were not obtained by cooling. Nevertheless, lower temperature was preferable, especially for

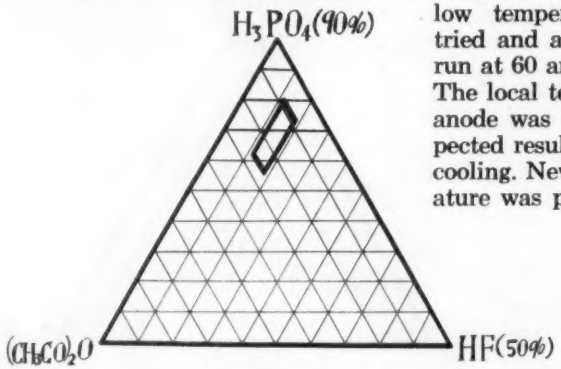

Fig. 5 — Solution composition diagram for the chromic acid-hydrofluoric acid electropolishing bath.

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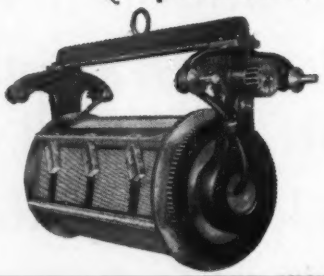

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the chromic acid bath. For other baths, it seemed that the selection of the solvent rather than the temperature was the important consideration.

In order to inhibit the pickling action of hydrofluoric acid, some surface-active agents (anionic and non-ionic) were added to the baths. These substances were effective, to some degree, on the sulfuric-hydrofluoric acid and phosphoric-hydrofluoric acid baths as an inhibitor, but for the other baths, adhesion of oxygen bubbles to the anode surface was promoted, and chemical attack of fluoride ion on titanium was much more severe.

When other fluoride solutions are kept acidic, the same effect as in the case of hydrofluoric acid is obtained. Ammonium fluoride-sulfuric-acid-water, ammonium fluoride-phosphoric acid-water baths gave similar anodic luster to titanium. Alkaline fluoride solutions were not satisfactory.

Acknowledgment

The authors are very grateful to the Rem-Cru Titanium Corporation for the RC-70 commercially pure titanium sheets provided for use in this research.

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[4] S. Tajima, Electropolishing and Chemical Polishing, p. 171 (Sangyo Tosho Publishing Co., Tokyo, 1952, in Japanese); Metalloberflache B 4 Heft 4, S. 54 (1952) (in German).

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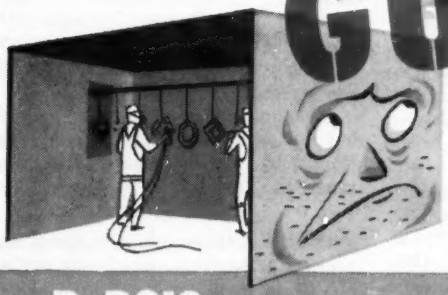

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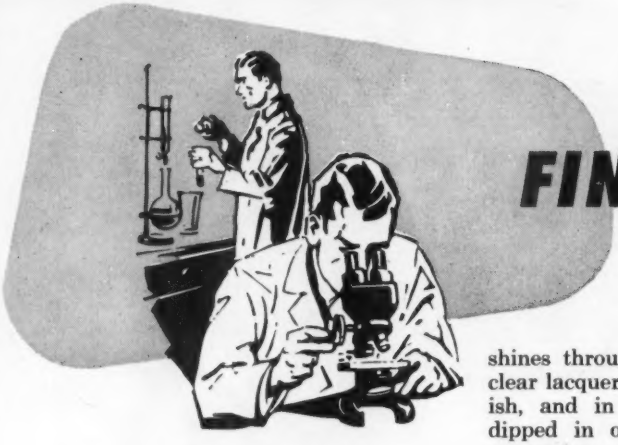

FINISHING

Question. *We manufacture many parts made of brass and copper which require an acid dipped bright finish. Can you furnish us with a formula so that we can obtain the desired finish?*
O. H. J.

Answer. Copper and brass products may be bright dipped in a mixture of sulfuric, nitric, and hydrochloric acids, and also in chromic acid solutions. We are forwarding details.

You may be interested in the information presented in the article, "Automatic Bright Dip for Brass Parts," published in the May, 1953 issue of PRODUCTS FINISHING, a tear sheet copy of which is enclosed.

Also, a number of excellent proprietary bright dips for copper and brass are available from a number of plating supply companies.

———— fc ————

Question. *Can you furnish us with a simple formula for oxidizing bronze to make it appear as an antique finish?*
H. T. A.

Answer. The so-called oxidizing procedure is a process of dipping the metal in a sulfide solution, which forms a coating of black copper sulfide on the metal surface This coating may be subsequently highlighted in spots so that the color of the base metal shines through; it may be dipped in clear lacquer to preserve the black finish, and in some applications it is dipped in oil to give it lubricating properties.

We are enclosing reprints of the articles "Electroplating, Metallic and Clear Lacquers Utilized in Casket Finishing," "Antique Copper Finish for Modern Gas Ranges," published in PRODUCTS FINISHING, in which the formation of "oxidized" coatings is discussed.

We are also referring you to a number of suppliers of proprietary solutions and chemicals used in producing black finishes.

———— fc ————

Question. *Our plant specializes in industrial hard chrome plating. One of our main problems is stopping off surfaces upon which we do not wish to plate. We use stop-off wax, tape, or stop-off lacquer, but each of these has serious drawbacks. We believe that there is a stop-off lacquer on the market which is applied by brushing or dipping, dries quickly, and forms a very strong, plastic-like coat. We would appreciate your informing us as to the manufacturer of this material.*
S. Z.

Answer. As you point out, masking is one of the chief problems of hard chrome plating. You may be interested in having the enclosed reprint of the article, "Hard Chrome Plating Made Easy," published in the December, 1953 issue of PRODUCTS FINISH-

CLINIC

ING. In this article the use of lacquers, masking tape, and various plastic materials for masking is discussed. We should like to refer you to manufacturers of masking materials for more specific information (names furnished).

There is one masking tape used by hard chrome platers which has a lead surface. This is most effective in masking sharp edges.

Perhaps the stop-off lacquer that you have in mind is a plastisol rack coating material. This liquid coating material is applied by dipping, but it must be baked at 350 deg. F. to form a cured coat. Normally it is used for plating rack insulation.

——— fc ———

Question. *When polishing brass plated rods, the buffing compound leaves a fine film. We can remove this film by wiping or by chemical means, but it is somewhat costly. Can you suggest a manufacturer of automatic high speed wiping machines to clean these rods before packing?*

We are contemplating the use of zinc base die castings as supports for aluminum extruded tracks. What inexpensive method would you suggest to have these zinc die castings match the color of the aluminum extrusions?

We are also contemplating the use of zinc base die cast rings. These rings vary in diameter from ½ to 3 inches and are about 3/32 inch thick. Can you suggest a method of polishing them in batch quantities after they are brass plated? *I. E. H.*

Answer. With reference to your problem of the residual buffing compound on the brass plated rods, we suggest that you contact designers and manufacturers of polishing and buffing machines for assistance (names of companies furnished). These manufacturers can certainly design an automatic high speed machine which can be used with a soft buff to clean the brass plated rods to the satisfaction of your customers.

In order that the zinc die castings match the color of the aluminum extrusions, it may be necessary that the zinc or the aluminum, or both, be chemically colored. We are referring you to plating equipment and process suppliers who can advise you as to the solution of your problem, and the chemicals and equipment required.

It is quite possible that the brass plated rings can be burnished to an acceptable luster by a barrel tumbling or finishing method. For information on equipment, materials, and process to be used in barrel finishing these products we are referring you to our Consulting Editor, H. Leroy Beaver, and to equipment and material supply companies in this field.

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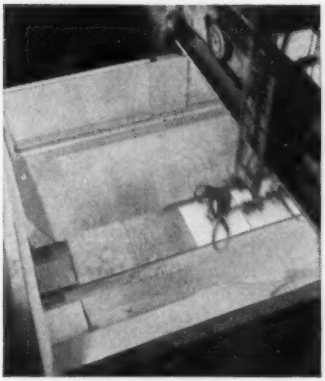

This finish is a special emulsion formula developed for the new fully automatic tile production line at the Newark, Ohio, plant of the Owens-Corning Fiberglas Corporation. Called Glidden Acoustical Tile Coating, it meets all standards of light reflectance, appearance, and fire retardment, yet retains the sound-deadening properties of the tile.

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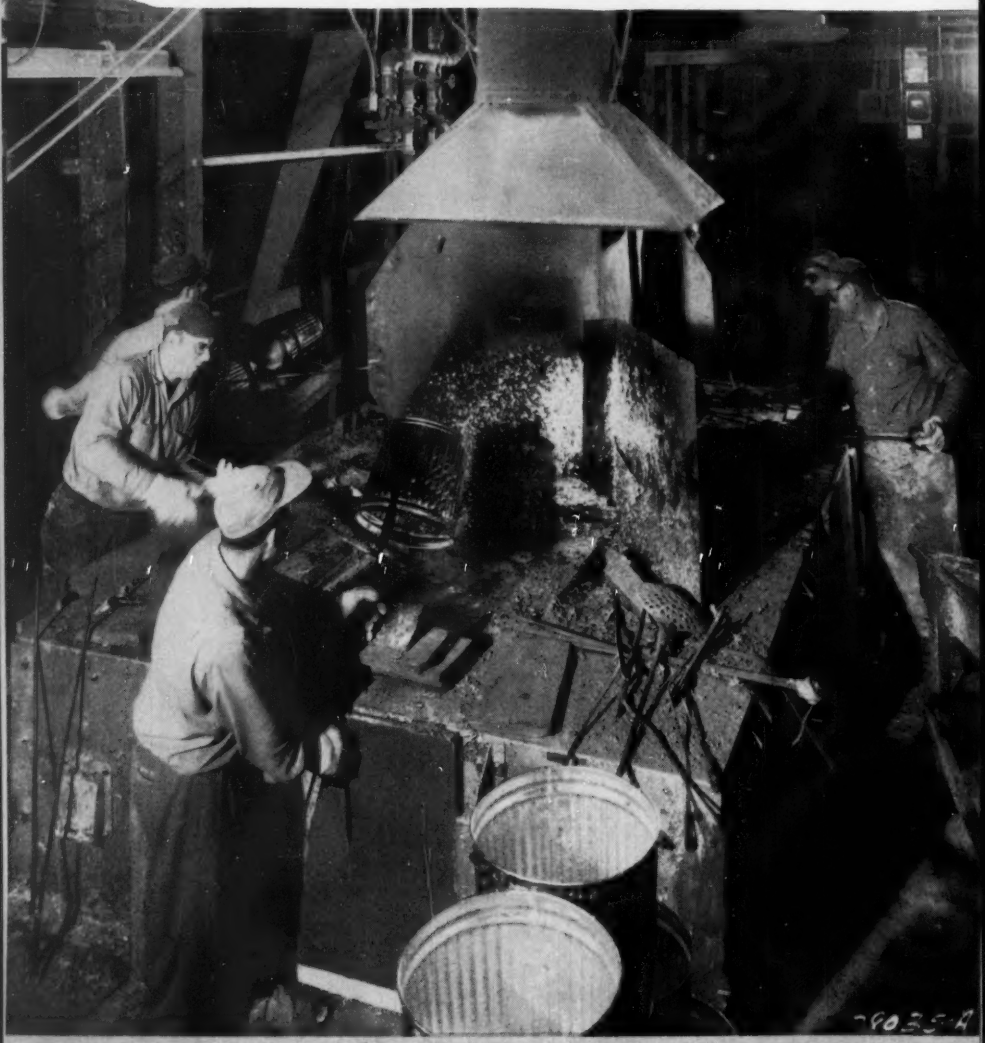


Fig. 1—Many pieces of varied size are hot dip galvanized in this gas-fired galvanizing pot located in the plant of NESCO, Baltimore, Maryland.

Galvanizing Operations

By ARTHUR Q. SMITH
American Gas Association
New York

ACCURATE, precision heat control during galvanizing operations is the key to uniform, high quality production. Gas fuel properly applied and controlled is the answer to many galvanizing processing problems. This is especially true in the Baltimore, Maryland, plant of NESCO, Inc., manufacturer of a long line of metal products such as waste baskets, metal hampers, trays, containers and many other items including pails, tubs, large and small waste cans, rubbish burning containers and watering cans.

Some are decorated in bright and attractive colors, others lithographed in pleasing designs. In these particular processing operations, the lithographed metal sheets are dried in a standard gas-fired litho oven under completely automatic temperature control. Other items of a more utilitarian nature made by them are galvanized.

The heart of galvanized product manufacture, beyond the stamping and forming operations is the application of the zinc finish.

For this purpose a galvanizing kettle is used. The term "kettle" is applied to all forms of galvanizing equipment whether it is a small dip pot or a large and elaborate automatic continuous operation. The galvanizing installation at NESCO is a series of individual batch type tanks each of 30,000 pounds metal capacity (Fig. 1).

Galvanizing kettles have been and still are being heated by every known fuel available. At NESCO the several kettles are fired with coke, and only recently, as a trial, one of them was converted to natural gas. The success of this conversion job has resulted in the changeover of another kettle to gas and eventually all the kettles will be gas heated.

As the galvanizing operations at this plant are so varied due to the great variety and size of products having this type of finish, the galvanizing setting must be most flexible. This is where proper burner design and control enter the picture. This particular conversion job to natural gas was done with a Sunbeam Stewart indirect, high side gas-fired furnace with eighteen nozzle-mixing burners having an input of two million Btu. per hour (Fig. 2). With nine burners on each side it supplies an even quantity of heat to the sides of the kettle. These burners are capable of accurate

flame control making it possible to obtain the desired flame length while still maintaining a sufficient Btu. output. The burners have a wide turndown ratio which eliminates the necessity of having a second set of burners for idling purposes. There is an exhaust stack over the setting.

To ensure uniform heating, not only must the rate of heating be uniform, but the heat must be applied uniformly to the kettle itself and at the zone where the heat is required. In this particular furnace the fuel is completely burned in a separate combustion chamber. The hot products of combustion flow evenly up over a dividing baffle wall to the top section of the pot and down the side of the pot to the exhaust vents. By this means no flame can impinge on the pot thus making for longer pot life. The hot gases together with the radiation from the baffle walls evenly heat the kettle from the top down.

One of the principal advantages of gas fuel is its controllability which is a most important factor in any galvanizing operation. It is important that the zinc be kept at a uniform temperature so that the stock will be coated uniformly. Another reason for accurate control and temperature maintenance is to

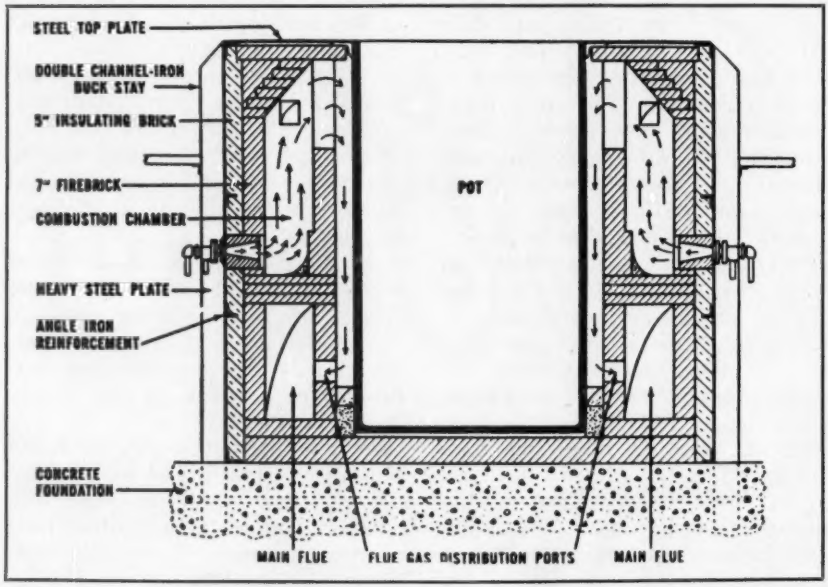
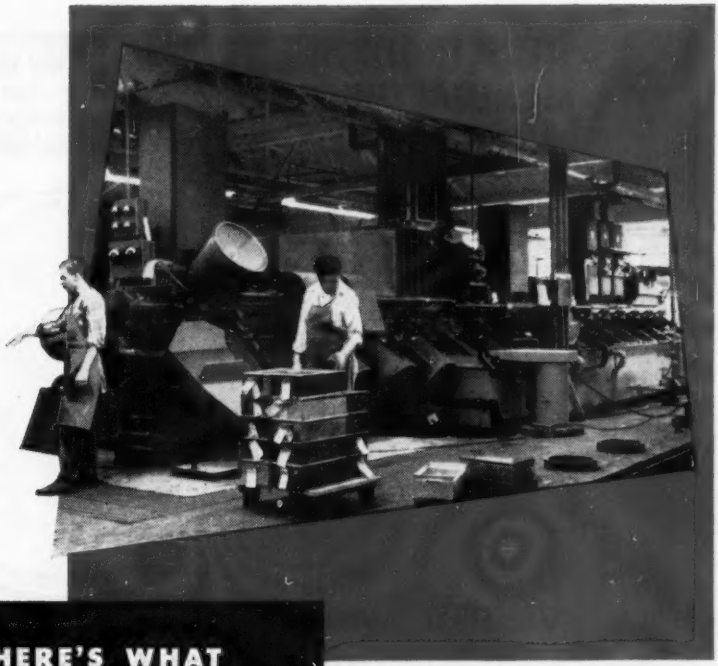


Fig. 2—A plan view of the Sunbeam Stewart galvanizing furnace, showing how the fuel is burned in a separate combustion chamber and how the hot products of combustion flow evenly up over a dividing baffle wall to the top section of the pot, and then down the side of the pot to exhaust vents.



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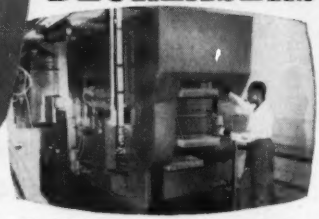

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keep the iron content of the bath at a minimum. It will be seen from the accompanying chart (Fig. 3) how evenly the temperature was kept during an operating period.

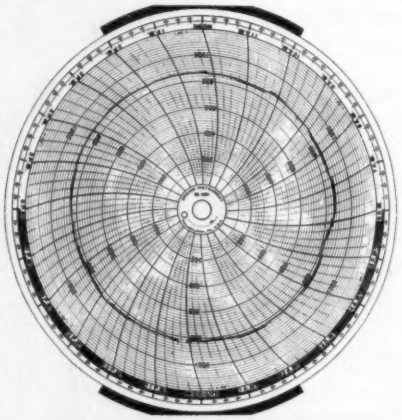

Fig. 3—A chart from the recording thermometer shows a record of temperature for one full day's operation. Automatic controls bring the galvanizing bath up to 860 deg. F. at about 5:30 A.M., and hold the bath at that temperature during the working day. At about 6:00 P.M. the temperature is automatically reduced to 820 deg. F. and held at that value during the night.

(Illustrations courtesy American Gas Association, New York 17, N. Y.)

Formed steel articles, perhaps large ash cans then smaller watering cans were processed during this working period. The chart shows how the gas supply was regulated to maintain a consistently uniform temperature throughout the day in spite of the diversity of bath load.

Replacement zinc pigs are preheated on a ledge in the center of the furnace before they are inserted in the bath.

It will be noted that the temper-

150% PRODUCTION INCREASE

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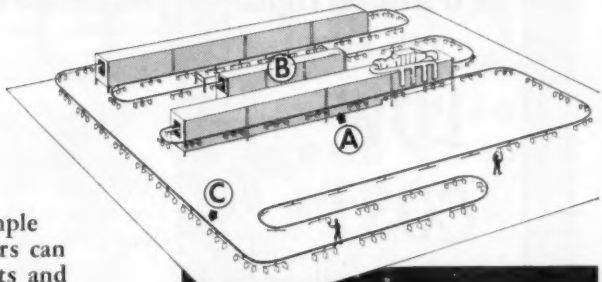

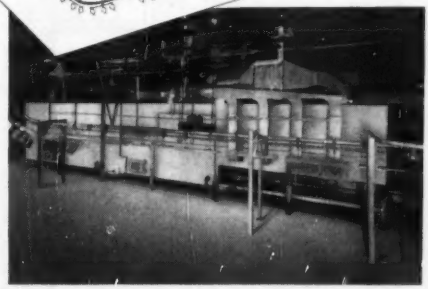

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ature was held at 860 deg. F. during the working period. When the day's work was done and the controls set at holding, the temperature was lowered to 820 deg. F. during the night. At about 5:30 A.M. the controls, which were automatically set, brought the temperature up to the operating range and ready for the day shift.

There are three thermocouples in the galvanizing setting, two for control purposes and one on the safety equipment. A recording thermometer is connected to the controls.

The manufacturing operations at NESCO follow accepted practices of stamping and shaping forms. Those which are to be galvanized are especially cleaned in an acid wash to remove all traces of grease. Then a cold water rinse and they are ready for galvanizing.*

* For details on cleaning prior to galvanizing and fluxing see the article "Compact Fabricating and Finishing Setup for Refrigerator Evaporators," published in the January, 1951 issue of PRODUCTS FINISHING.

Protecting Heating Coils in Some Corrosive Solutions

By G. G. SCHMUCK* and R. W. FLOURNOY**

COILS for heating corrosive solutions encounter more drastic changes in temperature, thermal stress and agitation than other associated equipment. It is desirable at times to find more economical

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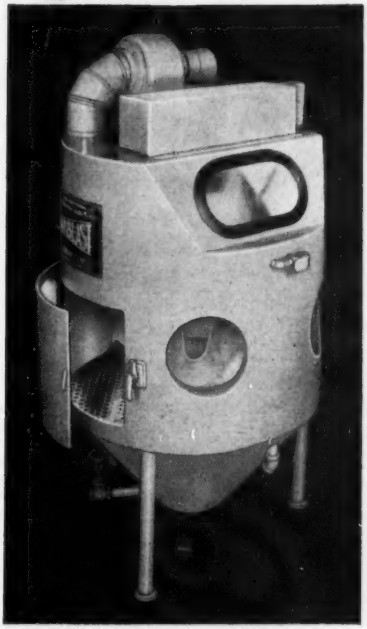

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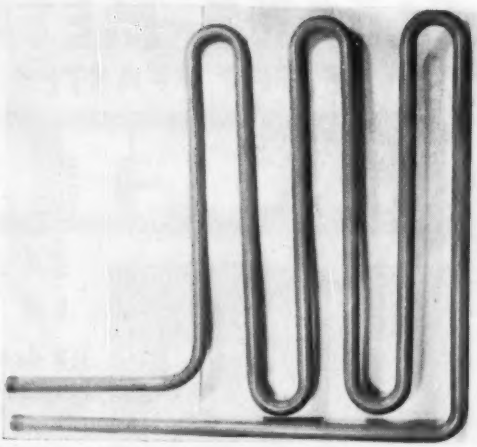

Fig. 1 — Aluminum heating coil coated with monochlorotrifluoroethylene polymer for use in corrosive solutions.
(Photo courtesy "Corrosion")

materials than those normally used for corrosion resistance to use for heating coils in some applications.

One satisfactory solution is the application of a coating of fluoro-carbon plastic material to common metals. Plastics are available which are resistant to many corrosives at temperatures up to 400 deg. F. The monochlorotrifluorethylene polymer has been applied in coatings up to 0.020 inch thick free of pinholes or flaws. Heating media, such as steam, may be used. The medium selected must not be corrosive to the unprotected interiors of the pipes or heating coils.

Figure 1 shows an aluminum heating coil coated with monochlorotrifluoroethylene polymer. The first coils of this type were coated only 0.005 inch thick, but the plastic was increased in thickness to 0.020 inch to extend the useful life of the coil. Coatings of both thicknesses have been tested with a 30,000-volt spark and found to be free from flaws.

While the coating reduces the heat transfer efficiency, the loss is not great enough to be significant in many applications. The coatings may also be applied to other designs of heaters.

This article was published in the August, 1954 issue of "Corrosion" and is reproduced here by permission of that publication.

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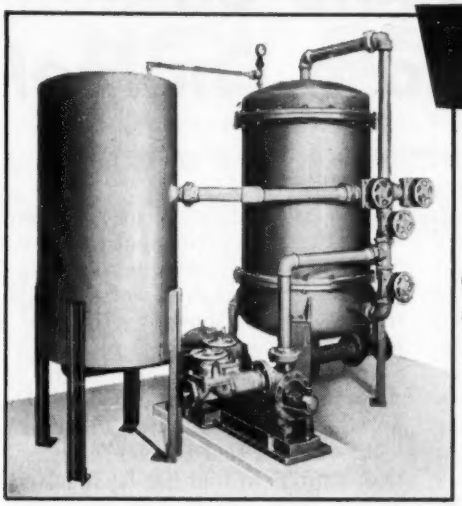

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Humidity Tests on Cellulose Enamel

EXPERIENCE has shown that a high grade pretreatment primer improves the adhesion, durability, and permanency of most enamel finishes on almost any metallic base. Detailed test data in support of this claim would be too voluminous, but typical average performance can be demonstrated by briefly summarized facts.

Table I (page 50) deals with the performance of a two-coat cellulose finish on several metal panels, subjected to a mild fluctuating humidity test. The actual conditions comprised a warm, relatively dry 8-hour day, with temperature controlled to 130-140 deg. F. and humidity 60 to 70 per cent; cooling to room temperature with rise in humidity to 100 per cent; condensation of moisture upon the specimens for the night period of 16 hours.

Aluminum normally must be chemically pretreated by chromic-sulfuric acid pickling, or by proprietary processes (phosphatizing), or by anodizing, if durable paint or enamel finishing is to be secured. The excellent performance imparted by the etch primer is shown by comparing the performance of Samples 1 and 2.

For mild steel a good primer is necessary, and preferably a phosphate pretreatment. The good behavior of Specimen No. 4 compared with the rapid deterioration shown by No. 3 proves the usefulness of the etch-type primer.

Zinc is a difficult metal upon which to secure permanent paint adhesion, especially electroplated zinc; cadmium plate is even worse in this respect. This is shown by the progress of deterioration in Samples No. 5 and 7. In contrast, Nos. 6 and 8 show that etch primer can result in sound finishes. These "difficult" metals offer a real problem in practice; a problem that has been solved by the pretreatment primer.

It is difficult to obtain paint adhesion on brass. Durability is much better than on zinc or cadmium; nevertheless, troubles are encountered, after a period of ageing, from chipping and flaking in handling, lifting of the finish when assembling components with screws or bolts, and flaking if engraving operations are performed. Much work has been carried out, especially in the instrument and light electrical industries, to solve this problem. Various bright dip processes, electroplate coatings such as nickel and tin, and shot blasting, having been exploited with varying degrees of success. The etch primer has proved to be the best answer to the difficulty, and if the etch primer is carefully selected, a complete solution will be found.

The average results given in the table show this fact decisively. Sample 9 shows the incomplete solu-

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Your Wyandotte representative or jobber will be pleased to show you how well **NEW** SPECIAL H strips paint from iron and steel at considerable savings to you. Call him, today, for a demonstration or sample! *Wyandotte Chemicals Corp., Wyandotte, Mich. Also Los Nietos, Calif.*

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Product	Use on	How to use	Features
New Special H—Highly alkaline and granular. Contains special wetting and penetrating agents.	Primarily iron or steel products—parts, equipment, vehicles, etc.	Immersion tank, steam gun or recirculating flow process. 5 to 20 ozs. per gal. of water. 180°F. to boiling.	Fast-acting on most paints. Attractively priced. Excellent heavy-duty steam cleaner and radiator boilout product.
Mersostrip—Highly alkaline and granular. Contains special accelerators and penetrating agents.	Primarily iron or steel products—parts, equipment, vehicles, etc.	Immersion tank, steam gun or recirculating flow process. 5 to 20 ozs. per gal. of water. 180°F. to boiling.	Strips the really tough paints in record time.
444-C—Thickened liquid based on organic solvents.	All metals and wood. Excellent for large parts not immersible.	Brush or flow-on, as received, at room temperature.	Extremely effective on most paints. Water rinsable, non-flammable.
P-1075—Liquid, organic solvent type with buffered water seal.	All metals.	As received, for immersion use at room temperature.	Same as 444-C. Also removes grease, oil and carbon from auto, truck, and aircraft parts.

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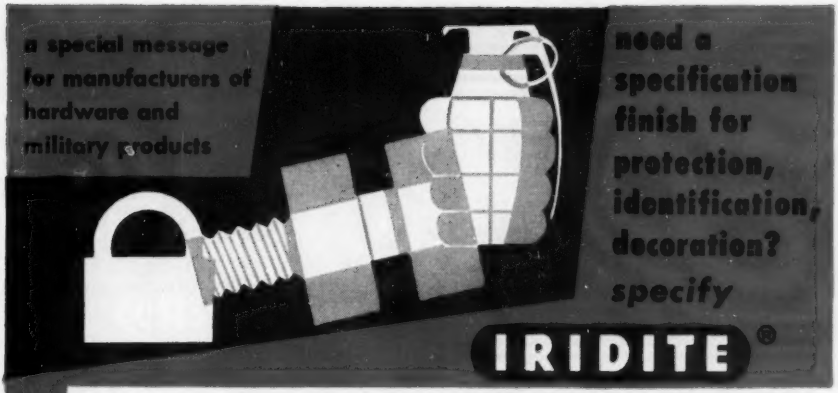
Table I

PERFORMANCE OF CELLULOSE ENAMELED (TWO COATS) METAL PANELS UNDER MILD HUMIDITY TEST

Sample No.	Base Metal	Adhesion of Finish After Period of Test		
		Initial	7 days	28 days
1.	Aluminum, solvent degreased	Rather poor, chipping on scratching and cracking on bending.	Very poor, flaking off completely on bending.	Exceedingly poor.
2.	ditto, plus baked etch primer	Good although film cracked on bending.	No deterioration.	No deterioration, adhesion still very good.
3.	Mild steel, degreased, and pickled or shot blasted	Rather poor, chipping on scratching and cracking on bending.	Very poor, chipping and flaking badly on scratching and flaking on bending.	Exceedingly poor.
4.	Mild steel, degreased, plus baked etch primer	Satisfactory.	No deterioration.	No deterioration. adhesion perfect. No flaking on bending, and no chipping on scratching.
5.	Mild steel, zinc plated	Satisfactory.	Slight tendency to cracking on bending.	Poor, chipping on scrathing and flaking on bending.
6.	ditto, plus baked etch primer	Satisfactory.	No deterioration.	No deterioration, adhesion very good.
7.	Mild steel, cadmium plated	Rather poor, chipping on scratching and cracking on bending.	Very poor, adhesion practically nil.	
8.	ditto, plus baked etch primer	Good although slight cracking on bending.	No deterioration.	No deterioration, adhesion still very good.
9.	Brass, solvent cleaned or shot blast or bright acid dipped or tin plated or nickel plated	Indifferent, varying degrees of chipping or scratching and cracking on bending.	Poor, tinplate sample best, all others chipping badly or scratching and flaking on bending.	Very poor, enamel flaking right away on bending.
10.	ditto, plus etch primer	Adhesion good, although tendency to slight cracking on bending.	No deterioration.	No deterioration, adhesion still good.



Specify Iridite . . . to meet military specs for corrosion protection during use or storage . . . for paint adherence . . . for low cost color coding . . . or to add quality and sparkle to your products. Here's how you can use Iridite:

ON ZINC AND CADMIUM you can get highly corrosion resistant finishes to meet any military or civilian specifications and ranging in appearance from olive drab through sparkling bright and dyed colors.

ON COPPER . . . Iridite brightens copper, keeps it tarnish-free; also lets you drastically cut the cost of copper-chrome plating by reducing the need for buffing.

ON ALUMINUM Iridite gives you a choice of natural aluminum, a golden yellow or dye colored finishes. No special racks. No high temperatures. No long immersion. Process in bulk.

ON MAGNESIUM Iridite provides a highly protective film in deepening shades of brown. No boiling, elaborate cleaning or long immersions.

AND IRIDITE IS EASY TO APPLY. Goes on at room temperature by dip, brush or spray. No electrolysis. No special equipment. No exhausts. No specially trained operators. Single dip for basic coatings. Double dip for dye colors. The protective Iridite coating is not a superimposed film, cannot flake, chip or peel.

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Manufacturers of Iridite Finishes for Corrosion Protection and Paint Systems on Non-Ferrous Metals, ARP Plating Chemicals.

GOLD SALTS

BY AUROMET

Auromet Gold Salts are made from U. S. Treasury gold to insure purity and uniformity.

Auromet Gold Salts are manufactured in our modern plant by skilled scientific craftsmen following the trade's most exacting specifications.

Auromet Gold Salts are available in 67.5%, 67%, 50%, 46%, 41% gold and any other lower percentage.

Auromet Corporation also manufactures Bright Gold, Silver, Silver Cyanide and Nitrate, Platinum, Palladium and Rhodium Concentrates. For complete information and technical service call WOrth 6-0863 collect.

AUROMET

CORPORATION

199 CANAL ST., NEW YORK 13, N. Y.

tion of the problem by abrasive blasting, or electroplate coatings. Sample 10 indicates the value of the pretreatment primer, whether it is applied direct to the brass (with or without bright dipping or abrasive blasting), or to nickel plate or tin plate. By careful selection of the etch primer, even the slight cracking on bending can be eliminated.

Table II

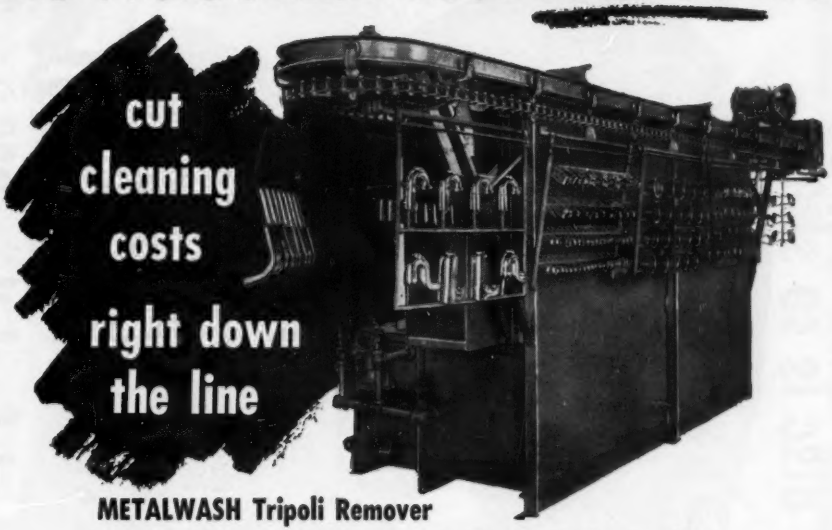
LABORATORY CHARACTERISTICS OF CELLULOSE ENAMEL

Physical	
Specific Gravity at 77 deg. F.	0.985
Viscosity at 77 deg. F., centipoises	1100
Composition	
Volatile Spirit (loss in wt., 3 hours at 230 deg. F.)	66.8%
Total Solids	33.2%
	100.0%
Spraying Conditions	
Air Pressure	45 p.s.i.
Viscosity, Ford Cup, No. 4 at 68 deg. F.	34 seconds
Drying time, between coats	2 hours
before testing	7 days

The results just described are obtained with an ordinary commercial grade of pigmented cellulose enamel, the characteristics of which are shown in Table II. Such enamels have a natural tendency to embrittle on ageing, and the pretreatment primer serves as a good safeguard against loss of flexibility and adhesion in service.

For information on any product mentioned in this issue—use READER SERVICE CARDS between covers.

DO A BETTER JOB FASTER...



METALWASH Tripoli Remover
cuts costs, speeds production, improves plating quality

The **METALWASH** Tripoli Remover is specifically designed for the removal of polishing compounds from metal parts prior to plating and lacquering.

Loaded racks are conveyed through the tunnel where the *complete removal* of buffing compounds is accomplished *automatically.*

Buffing compound and dirt are kept completely out of the plating equipment. Plating solutions are not contaminated – improving adhesion, quality and reducing costly rejects.

METALWASH Tripoli Removers are designed to fit into existing conveyor lines – the work is handled *on the plating racks,* eliminating all extra handling.

METALWASH VAPOR DEGREASERS *provide new speed, economy, durability;* better vapor control, coil-free tank walls, dual condensing system, and unitized water separator-pump chamber.

METALWASH SPOTLESS DRYER *eliminates hand-wiping of lacquered or plated parts.*

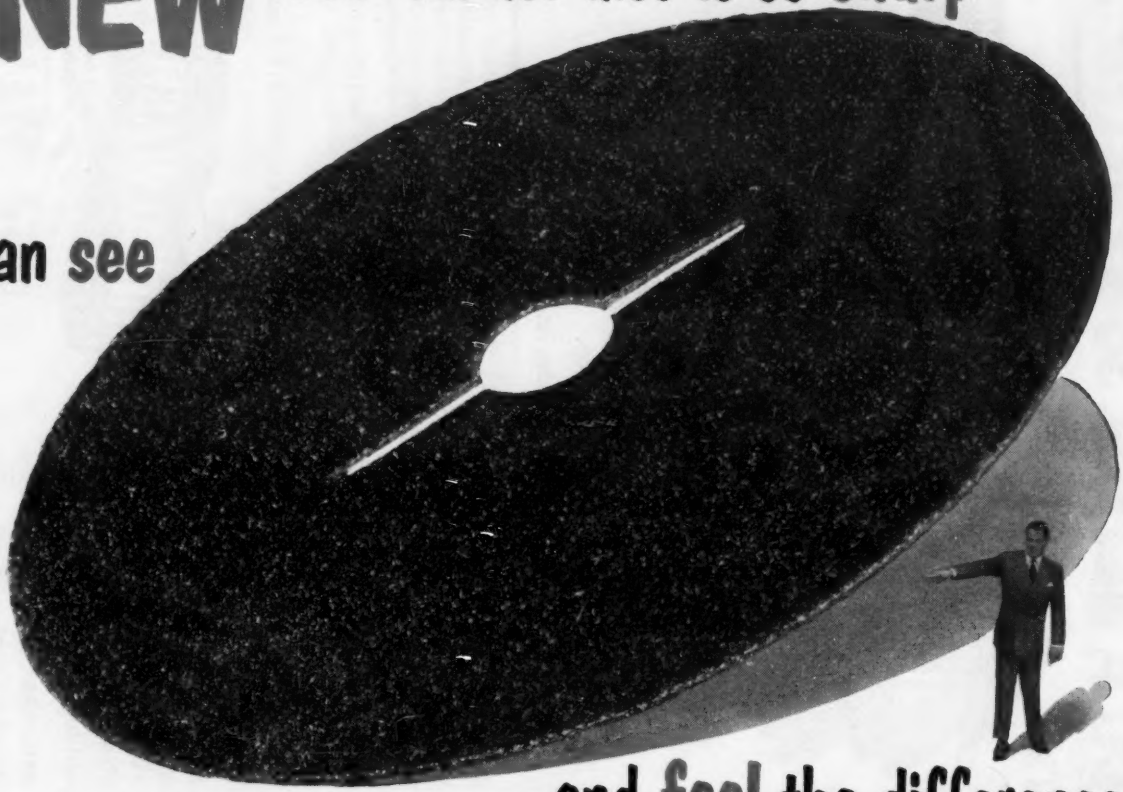
METALWASH PHOSPHATIZING MACHINES *provide ideal surface for lasting paint finishes.*

METALWASH®
WASHING PICKLING DRYING
PHOSPHATIZING DEGREASING

METALWASH MACHINERY CORPORATION
915 North Avenue, Elizabeth 4, N. J.
In Canada, Canefco, Ltd., Toronto, Ontario

This **NEW** resin sander disc is so sharp

you can see



and feel the difference!

You never saw a sander disc that *looks* so sharp... *feels* so sharp... *cuts* so fast, free and cool. It's the all-new Resin Sander Disc by CARBORUNDUM.

Test it on the toughest sanding job in your shop. See how it beats any other disc — for cutting ability, long life, uniformity. Notice how the edge holds its shape longer, and how the abrasive grain stands up under the most severe grinding conditions. And you'll find it *stays* uniformly sharp, from start to finish.

WHAT'S NEW IN THESE DISCS? EVERYTHING:

The abrasive grain is an improved type; the resin bond is engineered to provide more holding power; a new and tougher fiber is used in the backing. And rigid new manufacturing controls assure highest uniformity from disc to disc, from order to order... to give you truly dependable performance.

Sander Discs by CARBORUNDUM come to you in moisture-resistant boxes to keep them "factory-fresh" and to make handling and storage easier.

FOR A FREE DEMONSTRATION... call your CARBORUNDUM Distributor or Salesman, listed in the yellow pages under "Abrasives" or "Grinding Wheels." Or write The Carborundum Company, Dept. PF 82-417, Niagara Falls, New York.

CARBORUNDUM

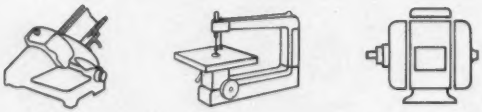
REGISTERED TRADE MARK

...continually putting more SENSE in your abrasive DOLLAR

82-417

Here's more that Lowe Brothers THERMO SPRAFIL® system is the "hottest" news in industrial finishes today!

As a manufacturer of both hot and cold lacquer systems, Lowe Brothers have found that the hot lacquer system is rapidly becoming the *preferred system* in an increasing number of manufacturing plants. The reasons?—Faster handling and lower cost of all finishing operations. Here's a typical case history.

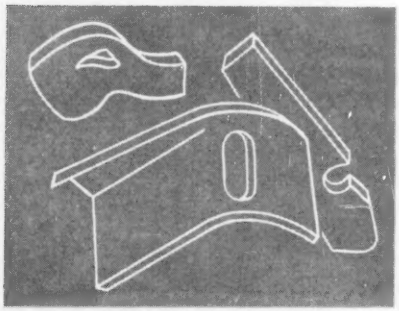


NOTE: This advertisement is based on facts from Lowe Brothers case history files.

"case history" proof

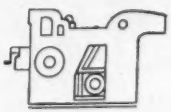
CASE HISTORY: *Thermo Sprafil System* eliminates 3 baking operations—speeds up production!

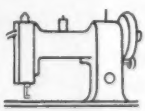
Wanting to speed the flow of heavy castings through his finishing operation, a large eastern manufacturer installed the *Thermo Sprafil* "hot" system at the suggestion of a Lowe Brothers "Finishing Specialist." Here's what happened: 1. Due to *Thermo Sprafil's* fast drying advantages, *three* separate baking operations were eliminated on every casting! 2. Sanding was eliminated! 3. All handling time and labor required to put castings through the *three* bakings were eliminated. 4. The three ovens were removed, releasing many square feet of vital factory floor space for other use. 5. Actual time required for complete finishing operation on each casting was cut from 12 to 4 hours.

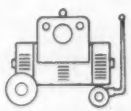


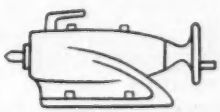
More and more manufacturers are seeing proof that Lowe Brothers *Thermo Sprafil System* provides the finest in finishing results while *eliminating* many of the costly and time consuming features of old cold lacquer systems. Get full details about the *modern Thermo Sprafil System*. Let a Lowe Brothers "Finishing Specialist" give you his recommendations based upon complete knowledge of the most up-to-the-minute finishing developments. No obligation. Why not write for more information today?

THE LOWE BROTHERS COMPANY • Dayton 2, Ohio
Industrial Division
District Offices:
Atlanta, Boston, Chicago, Jersey City, Kansas City









***Thermo Sprafil* is saving money and speeding production for manufacturers of a wide range of products. How about yours?**

Spotlighting FINISHING Progress

Glass Pipe and Fittings

THE use of glass as an industrial material of construction has been increasing steady during the past 20 or 30 years; recently the use of glass pipe and pipe fittings in the electroplating field has attracted considerable attention. J. S. Chowning, staff engineer of Corning Glass Works, described progress in the manufacture and use of glass piping at the Meeting of the International Association of Electrotypers and Stereotypers, in Cincinnati.*

Corrosion and the handling of corrosive solutions are major problems of all chemical processing industries including the electroplating industry. The National Association of Corrosion Engineers has estimated that corrosion costs American industry approximately 6 billion dollars per year, not including intangibles like loss due to production stoppages, loss of product, and damage to property such as buildings and machinery. In order to overcome corrosion of industrial equipment, numerous varieties

* See also, "The Electrotypers & Stereotypers Magazine," June 1954, p. 11.

By Dr. C. Fred Gurnham,
Head, Dept. of Chemical Engineering,
Michigan State College

A Monthly Digest of Current Technical Progress Indicating Significant Trends and Developments in the Finishing Industry

KOPPERS **Aeromaster FANS**

ARE

Granodized

WITH GRANODINE®

FOR EXTRA PROTECTION

KOPPERS Precision-Engineered Air Delivery increases the efficiency of air flow in industrial cooling systems. Basic element is the Aeromaster Fan, and this unit is operated continuously, sometimes under severe conditions. Dependable, efficient operation is a "must".

"Granodine" phosphate coatings provide a "tooth" for adhesion of subsequent finishes and protect the underlying metal so that rust will not spread if these finishes are cracked or nicked.

Koppers uses "Granodine" No. 50 to coat the 54-inch diameter hub of the 22-foot diameter fan shown above.

Aeromaster 22-foot Fans provide continuous air flow in C. H. Wheeler Cooling Tower at Pennsylvania Electric Company's Shawville Station, Pennsylvania.

"Granodine" application on welded 54" Hub for Aeromaster 6-bladed 22-foot Cooling Tower Fan.

"Granodine"® anchors the finish.

Pioneering Research and Development Since 1914

AMERICAN CHEMICAL PAINT COMPANY

CHEMICALS ACP PROCESSES

AMBLER, PA.

CHEMICALS ACP PROCESSES

DETROIT, MICH. **NILES, CALIF.** **WINDSOR, ONT.**

of special materials are employed; electroplaters are familiar with many of these. In the electroplating industry, the electrical conductivity of corrosion-resistant metals and alloys prevents their employment in many applications where electrical insulation is a necessity. Various types of rubbers and plastics have been used to resist corrosion and to provide electrical insulation. These are available, for example, as tank linings and as pipe fittings and other equipment.

Ceramic materials, including glass, have many advantages over corrosion-resistant metals and plastics. Their resistance to corrosion is more nearly universal than other common materials of construction. Glass has long been the standard material for laboratory utensils, where resistance to many varieties of corrosion is a necessity. Traditionally, glass and other ceramics have the disadvantages of brittleness and poor resistance to thermal shock. Recent improvements in mechanical strength and heat shock resistance were described in Mr. Chowning's paper.

TUMBLE FINISHING COSTS
with
BMT
Multi-Barrel
SlideHoning*
One BMT Multi-Barrel SlideHoning unit with 48" revolving disc and wide range of stationary mounted barrels does work of eleven or more conventional tumbling machines. Offers exceptional space and cost savings.
Angle mounting of barrels provides exclusive SlideHoning—a controlled combination of rotary, centrifugal, and end-to-end slide actions—that finishes metal or plastic parts normally considered impractical for conventional tumbling or done expensively by hand.
FOR TEST RUN: Send sample (up to 25 lbs.) and finished piece, prepaid. Process sheets furnished for cost comparison. No obligation on your part.
Write for FREE brochure
"Modern Precision Tumbling."
*Trademark
Pat. U.S. Pat. Off.
BMT Manufacturing Corporation, 103 E. 9th St., Elmira Heights, N.Y.

Chemical Resistance of Glass

Glass developed specifically for corrosion resistance will withstand attack by nearly all acids and alkalies, and by salts and

to page 64→

for easy, safe booth maintenance

"LIQUID ENVELOPE"

the original time-tested strip-coating

See for yourself how much time and money "LIQUID ENVELOPE" saves. See how it promotes fire-safety, increases illumination, helps ventilation.

"LIQUID ENVELOPE" is non-toxic . . . does not contain dangerous chlorinated solvent. It will not corrode metal walls or ventilating ducts. And it's absolutely flame proof and fireproof . . . the dry film will not burn or support combustion.

Order a 5-gallon test-sample at the drum-lot price. Convince yourself—as hundreds of smart operators have.

BETTER FINISHES AND COATINGS, INC.

268 Doremus Avenue, Newark 5, N. J. • 122 East 7th St., Los Angeles 14, Calif.

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Abrasive & Supply Co., Detroit, Mich.
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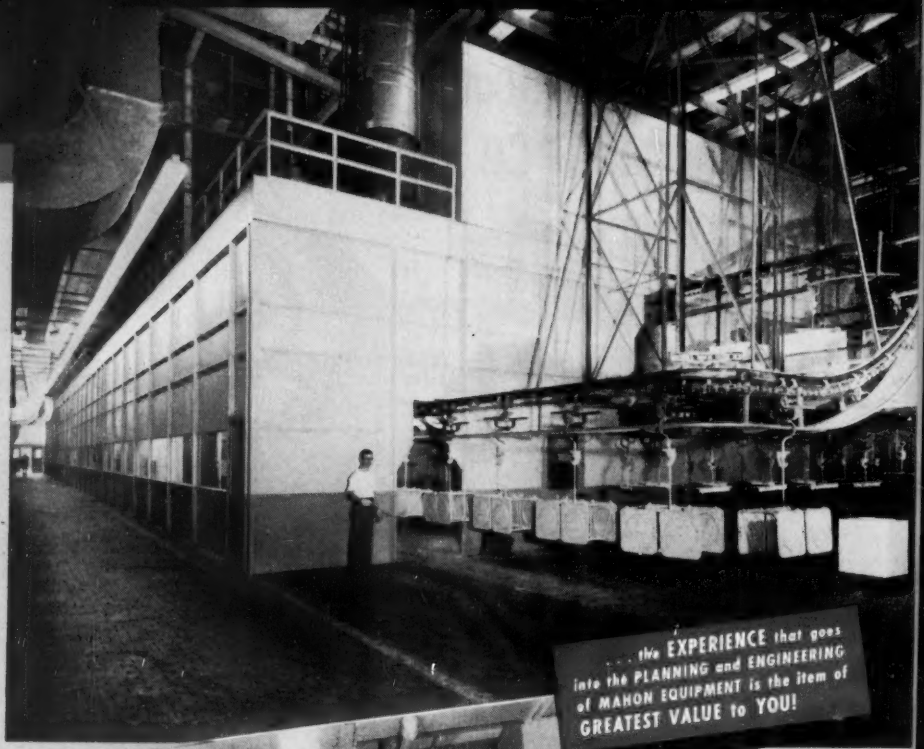
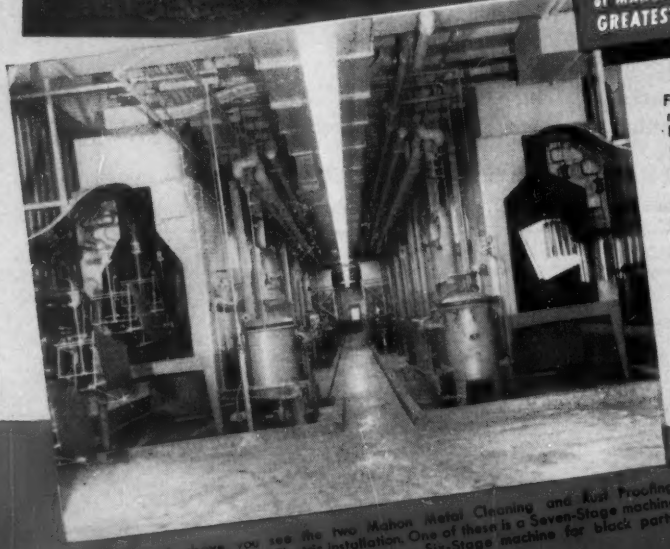
COMPLET



. . . the EXPERIENCE that goes into the PLANNING and ENGINEERING of MAHON EQUIPMENT is the item of GREATEST VALUE to YOU!



From right above, you see the interior of a Mahon Hydro-Filter Spray Booth. Next, the interior of a Mahon Automatic Electrostatic Spray Booth. Directly above is a view showing exterior housing which encloses the Complete Mahon Finishing System. Major processing units in this system are: Two Metal Cleaning and Rust Proofing Machines, two Dry-Off Ovens, two Flow Coating Machines, two conventional Hydro-Filter Spray Booths, one Electrostatic Spray Booth, two Finish Baking Ovens, a Filtered Air Supply System, Stripping Equipment, and paint Storage and Circulating Facilities.

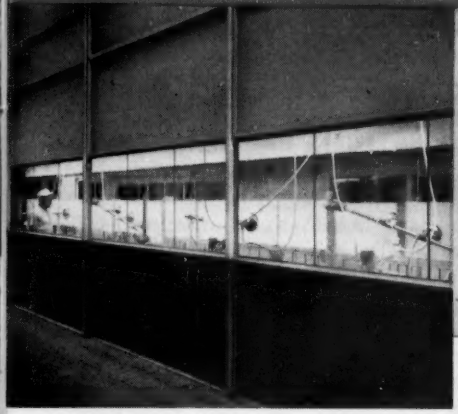
Illustrated above you see the two Mahon Metal Cleaning and Rust Proofing Machines in the General Electric installation. One of these is a Seven-Stage machine for processing white parts. The other is a Six-Stage machine for black parts.

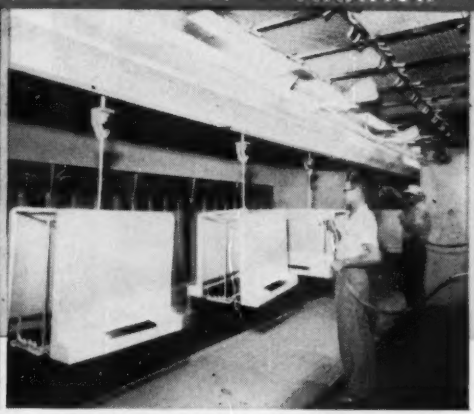
M

E

Finishing SYSTEMS

. . . for ENAMELS • LACQUER • PAINT • VARNISH





More and More HOME APPLIANCES Receive Their FINE FINISH in Modern, COMPLETE MAHON FINISHING SYSTEMS!

In the Home Laundry Equipment Department of General Electric Company, Louisville, Kentucky, a Complete Mahon Finishing System produces the fine finish demanded by one of the world's largest home appliance manufacturers. The system includes an enclosure, which houses all metal processing and painting equipment, with Finish Baking Ovens, Heating Units, Filtered Air Supply and Exhaust Fans located above . . . it is a complete, ultra-modern finishing system combining and coordinating all major units of equipment and other essential facilities into an efficient, smooth-running, economical production operation. There are actually three finishing lines in this system: One is a flow coating line for black parts. Another flow coating line applies the first coat of enamel—both Flow Coaters are equipped with controlled atmospheric paint surface conditioning chambers in the drip zone. The third line is a combination manual and automatic electrostatic spray for the finish coat of enamel. If you are contemplating new finishing equipment, you, like thousands of other quality-minded manufacturers, will find that Mahon engineers are better qualified to advise you on both methods and equipment requirements . . . and better qualified to do the all-important planning, coordinating and engineering of equipment—which is the key to fine finishes at minimum cost. You will find also, that Mahon equipment is built better for more economical operation over a longer period of time. Mahon will furnish your complete system on one contract . . . undivided responsibility for the entire job safeguards you against complications which may upset your production plans and subsequent schedules. See Sweet's Plant Engineering File, or write for Mahon Catalog A-655.

THE R. C. MAHON COMPANY • Detroit 34, Michigan • Chicago 4, Illinois

Engineers and Manufacturers of Metal Cleaning and Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Spray Booths, Flow and Dip Coaters, Drying and Baking Ovens, and Complete Conveyorized Finishing Systems.

AHON

organic substances at all reasonable temperatures. Pyrex brand glass, a product of Corning Glass Works, is attacked only by hydrofluoric acid,

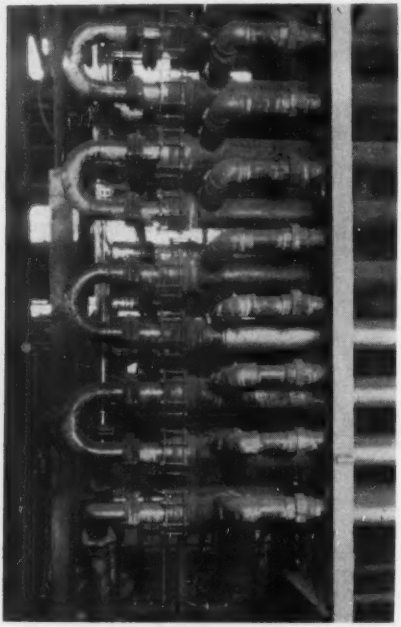


Fig. 1—A jacketed type Pyrex Double-Tough heat exchanger is used to handle hot chromic acid in the reclaiming operation at the Standard Steel Spring Company, Newton Falls, Ohio.

hot concentrated phosphoric acid and hot concentrated alkalies. The first may be of some interest because of the growing use of fluoborate plating solutions. Free boric acid is a recommended constitutent of most fluoborate baths, hence free hydrofluoric acid is present only in traces, if at all; it seems unlikely that glass would be attacked by standard fluoboric plating solutions. Further experimental work on this point may, however, be desirable.

The use of chemically resistant glass piping in industry is not new, but dates back more than 30 years. Several installations made more than 20 years ago are still in active, trouble-free service.

Heat Resistance of Glass

The poor resistance of ordinary glass to thermal shock, either by sudden chilling or sudden heating, is well known. On the other hand, equally well known is the fact that special glasses of low thermal expansion have been in use for a long time as cooking utensils and in other fields. Heat-resistant glass pans can be filled with cold water and placed directly over a gas flame or electric heating coil with perfect safety. In the industrial field, glass process piping can be emptied of cold liquids and purged immediately with live steam; conversely, hot fluid lines can be rinsed with cold water without damage due to thermal shock. Sudden temperature changes as great as 200 deg. F. are within the recommended permissible range for the new type of Pyrex brand pipe discussed by Mr. Chowning.

Mechanical Strength of Glass

The low mechanical strength of ordinary glass can be overcome to a remarkable degree by special heat-treatment of the glass after fabrication. The glass pipe and pipe fittings produced by Corning as their Pyrex brand "Double-Tough" is in this category.

All glasses are strong in compres-

to page 68→

AMPERES BY THE MILLIONS

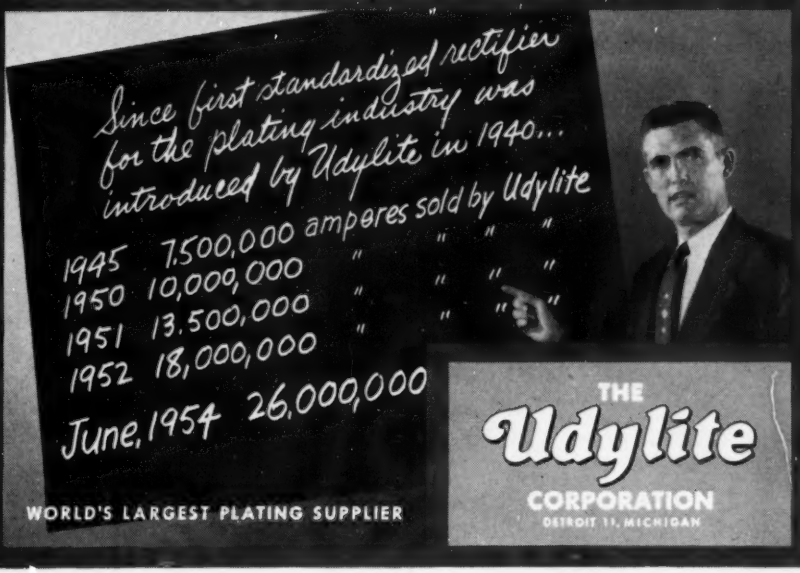
Udylite pioneered the first standardized rectifier for the plating industry in 1940. To date 26,000,000 amperes have been sold and installed.

Yes, it's know-how that counts. Back fourteen years ago when Udylite brought out the first magnesium-copper-sulphide rectifier the capacity was 1500 amperes, 6 volts. Many of these rectifiers are still in operation today. But great progress has been made in the application of electrical power to plating operations since 1940. Through research Udylite electrical engineers have developed and improved selenium rectifiers.

Udylite's complete line of first quality selenium rectifiers range from the bench-type furnishing 25 amperes to big banks of rectifiers with output up to 100,000 amperes. But building a good rectifier is only part of the job. The *application* is equally important. That's why Udylite "know-how" helps you. When you buy Udylite rectifiers you can be sure that the application is right, and your power is used efficiently.

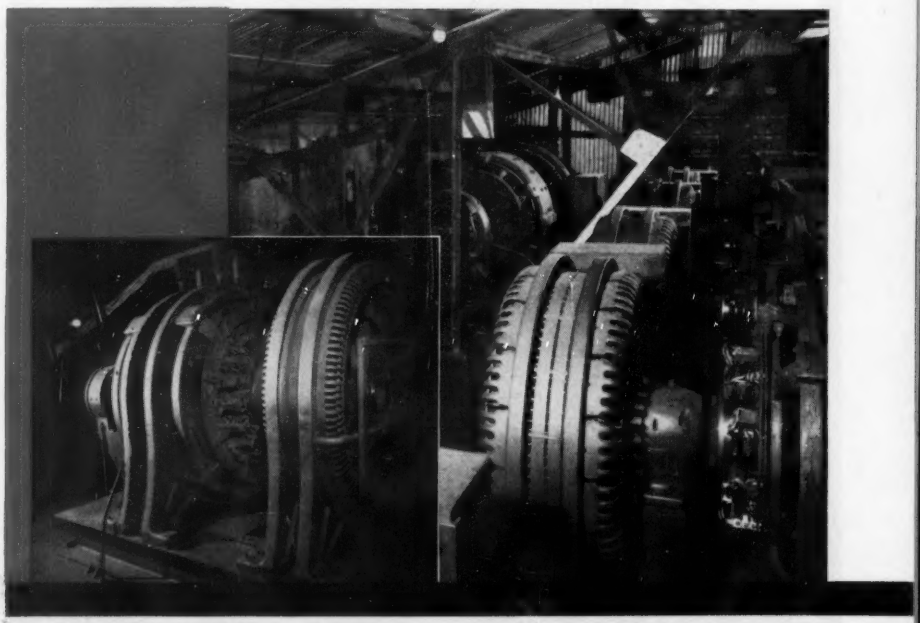
Thousands of plating customers have learned the importance of Udylite application "know-how". That's why our rectifier sales increase each year. Yes, that's why we have sold 26,000,000 amperes of rectifiers since 1940.

If you need rectifiers for electro-plating, electro-cleaning, electro-polishing, anodizing or hard coat process call your Udylite representative or write direct to . . . The Udylite Corporation, Detroit 11, Mich.


Since first standardized rectifier for the plating industry was introduced by Udylite in 1940...
1945 7,500,000 amperes sold by Udylite
1950 10,000,000 " " " "
1951 13,500,000 " " " "
1952 18,000,000 " " " "
June, 1954 26,000,000
WORLD'S LARGEST PLATING SUPPLIER
THE
Udylite
CORPORATION
DETROIT 11, MICHIGAN

Chandeysson

CUTS COSTS OF



14 volt, 10,000 ampere Chandeysson motor generator set as installed at United States Spring & Bumper Company.

Five Chandeysson motor generator sets are in daily service at the United States Spring & Bumper Company, 4951 Alcoa Avenue, Los Angeles, California.

POWER CONVERSION

IN 23 YEARS "WE HAVE SPENT PRACTICALLY NOTHING FOR MAINTENANCE AND REPAIRS" Says

UNITED STATES SPRING & BUMPER CO.
LOS ANGELES, CALIFORNIA

"And," continues Mr. John B. Rauen, President of United States Spring and Bumper Company, "we are still using the first Chandeysson generator we ever bought . . . even though we have given it pretty rough treatment at times. We have five Chandeysson generators now, all giving dependable service although we overload them quite heavily at times."

So says another long-satisfied Chandeysson owner . . . proof once again that any way you look at it, any way you figure it, "Chandeysson cuts costs of power conversion." You can expect similar performance from a Chandeysson installation in your plant. Write, or mail coupon, for full information.

CONVERT WITH *Chandeysson* AND SAVE 4 WAYS

- Use less power
- Be sure of power when you need it most
- Get more out of the power you pay for
- Enjoy lifetime power dividends

Bulletin D-102 contains data and specifications on Chandeysson machines. If you are interested in power savings and power dependability, it will pay you to read this bulletin. Your copy sent promptly, and without obligation.

CHANDEYSSON ELECTRIC COMPANY
4082 Bingham Avenue
St. Louis 16, Missouri

CHANDEYSSON ELECTRIC COMPANY
4082 Bingham Avenue, St. Louis 16, Missouri

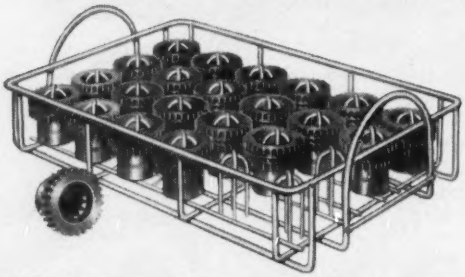
Please send me a copy of Bulletin D-102.

Name .....
Company .....
Address .....
City ..... Zone ..... State .....

sion but weak in tension. Weakness in tension is illustrated by the usual procedure for cutting glass, which involves scratching a surface and then placing that part of the glass in tension by bending. This technique works equally well on glass window panes or on glass tubing in the laboratory. The high compressive strength of glass is utilized in the high-strength glass piping now on the market.

A special heat-tempering process applied to Pyrex brand glass causes the glass surface to be put into a state of permanent compression. Impacts and other forces during use, which would damage ordinary glass by causing tension, serve only to counteract partially the permanent compression of these special glasses, hence tension never develops except under extreme force. The surface hardening increases both scratch resistance and overall mechanical strength, from two to four times that of ordinary annealed glass. This is the process currently used in manufacturing cooking utensils, boiler water gage glasses, heavy glass door pannels, and the industrial glass pipe and fittings which are the subject of this paper. The extreme impact resistance of pipe fittings so treated has been

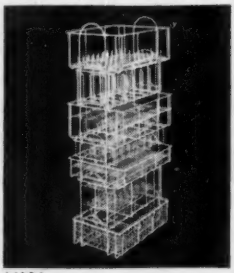
EEZY-STAK BASKETS
for Better Parts Handling



EEZY-STAK BASKETS SIMPLIFY PARTS HANDLING...CUT COSTS...REDUCE REJECTS!

WIPCO manufactures a complete line of Custom-Designed stacking (Eezy-Stak) and non-stacking baskets for handling all types of parts through every production and assembly process. WIPCO baskets can be made in any desired size or shape, and from any practical material.

Eezy-Stak baskets feature the exclusive Interlock Handle* which permits easy and safe stacking. Eezy-Staks are available in a wide range of standard sizes and metals which fit most parts-handling requirements. Write today for Bulletin B-54.



*Pat. No. 2646186

WIPCO BASKETS... *FROM INITIAL MACHINING TO FINAL ASSEMBLY AND SHIPPING*

WIRE AND IRON PRODUCTS INC.

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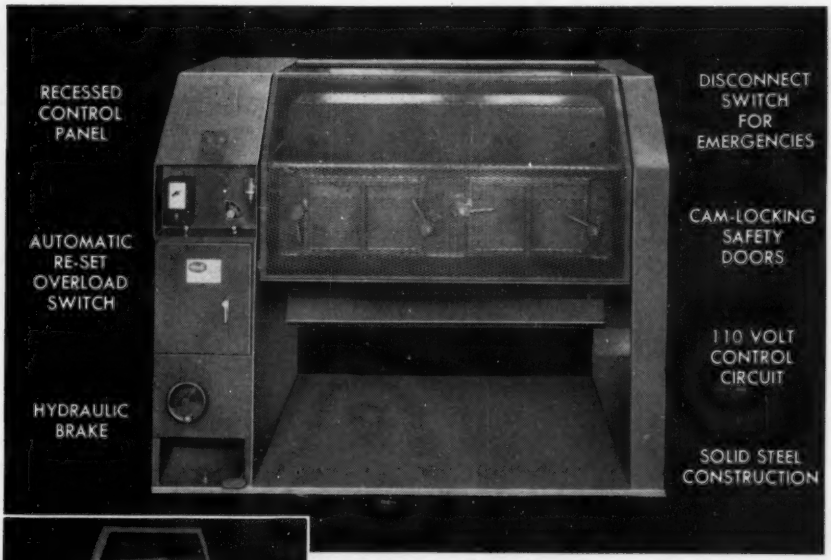

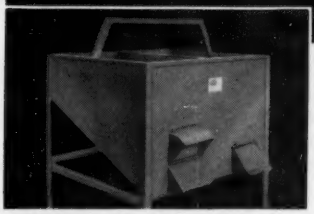

HONITE Chip Bin. All-steel construction, extra-sturdy, extra-safe. Specially designed doors produce a simple, gravity-feed operation under any industrial conditions.

HONITE Hoist Pan. All-steel construction, available in two sizes. Especially designed for quicker, easier materials handling, it will stand up to long years of hard use.

Only HONITE Barrel Finishing Machines give you all these exclusive features

MODERN, SAFE, simple to operate HONITE DV-5 and DV-3 Barrels (5 h.p. and 3 h.p.) are ruggedly constructed from the solid steel base up to guarantee a long service life. You save on maintenance costs because motors are housed in a splash-proof case; electric switches are mounted in watertight compartments; wiring is factory installed and completely waterproof. These barrels are built to outlast and outperform any other model on the market today. For further information call your HONITE Field Engineer or write Minnesota Mining and Mfg. Co., Dept. PF-104, St. Paul 6, Minn., for free folders describing Honite equipment in detail.

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Made in U.S.A. by Minnesota Mining and Mfg. Co. General Offices: St. Paul 6, Minn. In Canada: London, Ont., Can. Export: 122 E. 42nd St., New York City. Makers of "Scotch" Pressure-Sensitive Tapes, "Scotch" Brand Magnetic Tape, "3M" Adhesives, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing.

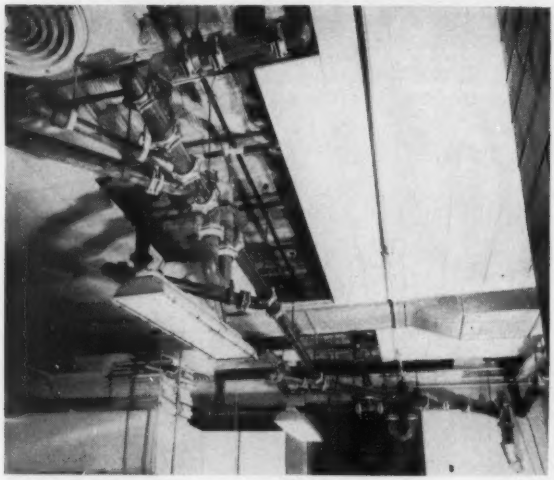

Fig. 2—A three-inch Pyrex Double-Tough line with fittings is used to carry photoengraving waste containing hydrochloric acid, nitric acid, and ferric chloride in the engraving and electrotyping department of The Chicago Tribune.

(Photos courtesy Corning Glass Works, Corning, N. Y.)

demonstrated by using a glass elbow as a hammer to drive a spike into wood.

Other Advantages

The extremely smooth inner and outer surfaces of glass piping offer advantages in many applications. Buildup of deposits on the inner wall is minimized, whether such deposits might come from solids carried in the stream or from precipitates formed in the fluid. Scale formation caused by corrosive attack on the pipe is almost unknown with glass equipment. When deposits do occur, the transparency of glass piping aids in locating and evaluating them, while transparency and smoothness combine to make cleaning relatively easy.

Mr. Chowning stated that in many installations glass piping is more economical than piping of other materials. This comparison is based on first cost, including installation, and life expectancy.

Construction and Installation

The usual method of connecting glass pipe and fittings is by means of bolted metal flanges. These are available in either cast iron or aluminum. Molded composition inserts are placed between the abutting glass pieces and gaskets of asbestos, rubber, Neoprene, Koroseal, Teflon, or other materials are offered. The actual factor of safety in glass pipe construction is from 10 to 20 times the maximum recommended operating conditions.

The installation of glass pipe in a plant is not difficult, and can be performed by a competent pipe fitter. The light weight of glass piping is a distinct advantage in ease of installation. Long runs of glass piping can be supported by conventional pipe hangers, with a 10-foot spacing recommended.

The preferred technique for an installation of glass piping is to order each individual piece needed from the manufacturer. If greater flexibility than this is required, there are three principal means by which it can be achieved. Greatest

What's your FINISHING PROBLEM?

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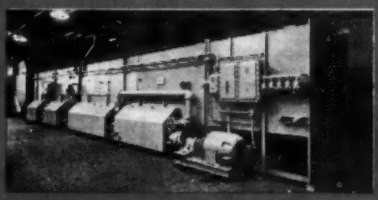

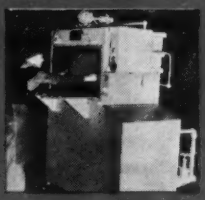

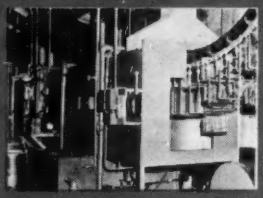

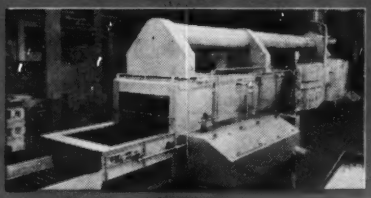

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INDUSTRIAL SYSTEMS COMPANY
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Matawan, N.J.

flexibility in design and installation is obtained by cutting and flanging glass pipe in the field to provide proper lengths. Another possibility is the use of adjustable joints which permit variations from 1½ to 2¼ inches per joint. A third technique, least flexible but frequently most convenient, is the use of spacers, which are available in lengths from ½ to 5 inches.

Applications

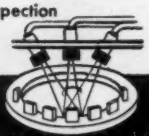
Any of three principal advantages of glass pipe may justify its use in preference to other materials of construction. The advantage of corrosion resistance is of importance to electroplaters, particularly with acid solutions and strongly oxidizing solutions such as chromium plating baths and anodizing solutions. Glass pipe is frequently used for waste or drain lines because of its almost universal corrosion resistance.

The prevention of contamination of fluids carried in the pipe is of interest to the plater as well. Contamination of plating solutions as a result of corrosion can be a major economic loss; prevention of this loss through the use of glass pipe is often desirable.

International Nickel and aluminum producers recently completed a ten-year cooperative research program which developed a nickel-plating that bonds so strongly with appropriate aluminum alloys that the composite materials may be deep drawn and later finished with chromium plate. This is expected to open a new market in the plating of aluminum appliances.

which of these FINISHING PROBLEMS are yours?

- ☐ Soldering bond
- ☐ Decorative effects
- ☐ Paint adhesion
- ☐ Plating bond
- ☐ Anodized film adherance
- ☐ Satin finishes
- ☐ Instant wetability
- ☐ Welding bond
- ☐ Phosphate coating bond
- ☐ Brazing bond
- ☐ Preparation for non-destructive testing
- ☐ Lubrication retention
- ☐ Surface activation
- ☐ Stress relief
- ☐ Vinyl coating bond
- ☐ Ceramic coating bond
- ☐ Smoother surfaces
- ☐ Etching
  - ☐ Plastic
  - ☐ Metal
  - ☐ Glass
- ☐ Elimination of galling
- ☐ Reduction of friction
- ☐ Visual inspection



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TWO SPEED

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Be sure of rack protection that's

. . . use COATING 218X

THAT'S RIGHT – Unichrome Coating 218X is so inert, it's approved by leading bright nickel producers. It won't contaminate or be attacked by other plating baths either. In fact, this tough, resilient green plastisol coating goes one step further. Since it doesn't form pockets, blister, chip or crack, it keeps rinsing freely – minimizing dragout and drag-in problems, too.

Over 5 years of service experience show Coating 218X quality cuts rack coating cost to the bone. It assures top resistance to all plating, cleaning, anodizing and even vapor degreasing cycles.

Remember, Coating 218X is produced by United Chromium . . . the company that has: (1) Developed plating processes; (2) Given service on plating problems; (3) Pioneered highly corrosion-resistant plastisol coatings . . . and therefore knows what a rack coating needs for maximum plating service.

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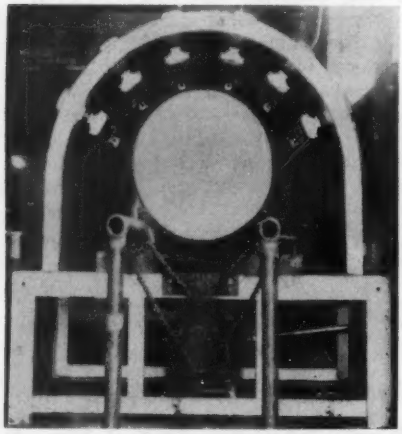
Practical Applications of modern products

Heating Before Painting Speeds Drying of Steel Barrels

IN most paint baking and drying operations heat is applied after painting to rapidly cure the finish. But here is a case where it was found to be faster and more efficient to do some heating before painting, and to let the heated mass dry the paint in effect "from the inside out." Reconditioned steel barrels are dried in 15 minutes by this method, in contrast to three or four hours previously required for air drying alone.

In this arrangement at the Barrel Remodeling Company, Kansas City, Mo., reclaimed barrels are placed on revolving rollers so that heat is applied uniformly and rapidly just before spray painting. Six Chromalox radiant units, manufactured by Edwin L. Wiegand Co., 7552 Thomas Blvd., Pittsburgh 8, Pa., are arranged to form a compact open-end radiant tunnel. Far-infrared electric heaters of the high intensity all-metal type were chosen for this application.



Far-infrared tunnel for heating steel barrels prior to painting at Barrel Remodeling Co.

Just 30 seconds is required to preheat the barrels to the required temperature of 175 deg. F.

After heating, the barrels are placed on end-spinners in the spray booth for an even coating of paint. Paint adheres very well to the preheated surface—there is no blistering at 175 deg. F. and the paint dries fast and even.

An additional important advantage of this installation is that a considerable amount of paint is saved by this heating arrangement. The heat appears to reduce the viscosity of the paint, permitting a given quantity to be applied evenly over a larger area. The tendency of thicker coats to pile up or run is minimized.

The all-metal Chromalox heaters are advantageous in this case because they can not be damaged by vibration of the machine or by occasional contact with the steel barrels.

Munray Peel-Kote Aids in Producing Formed Aluminum Sheet for Anodizing

MUNRAY Peel-Kote (Type MC) strippable plastic coating has eliminated rejects due to scratches and die marrs on Alcoa aluminum sheet fabricated into Deep-Rib siding by

Ideco Division of Dresser-Stacey Co. for Alcoa's new color-anodized aluminum aircraft hanger at Allegheny County Airport at Pittsburgh. This is the first hanger of its type to be erected and is intended to provide a permanent, attractive structure requiring no painting or other maintenance. It is anodized and dyed blue.

The manufacturer states that Peel-Kote MC is a special formulation developed to protect all types of metals during forming, handling, storage, and shipping operations in the manufacture of appliances, electrical components, auto and aircraft bodies. Other types of Peel-Kote are available in spray, dip or brush consistencies for spray booth maintenance, packaging of consumer products and protection of industrial parts, tools and products.

Munray Peel-Kote is clear in color, possesses a very high percentage of elongation and is not damaged by shallow drawing. It's adhesion properties result in a positive bond to the metal, and at the same time Peel-Kote can be easily stripped off when desired. It protects the metal against scratches and marrs during forming operations as well as in shipment. Peel-Kote features good abrasion resistance, markings can be made directly on it, it will not support combustion when dry, and it can be stored indefinitely without undesirable effects, it is claimed.

Formerly die marrs were responsible for 20 to 30 per cent rejection of shallow drawn aluminum sheets destined for anodizing. Since using Munray Peel-Kote, Ideco has eliminated all rejects. After forming, Peel-Kote is allowed to remain on sheets for shipment to anodizer. This practice protects ribbed sheets during shipment and provides a clean surface.

In this particular application, Peel-Kote is first applied just prior to forming. High solids content of this new strippable plastic coating permits a 1½ mil thickness to be automatically sprayed on sheets as they pass by on a gravity feed conveyor. Aluminum sheets are 61ST grade, 0.034 and 0.040 gauge and measure 3½ feet wide by 9 feet long. Peel-Kote dries tack-free quickly and requires no extra handling time or special procedures prior to stacking. Coated sheets are al-

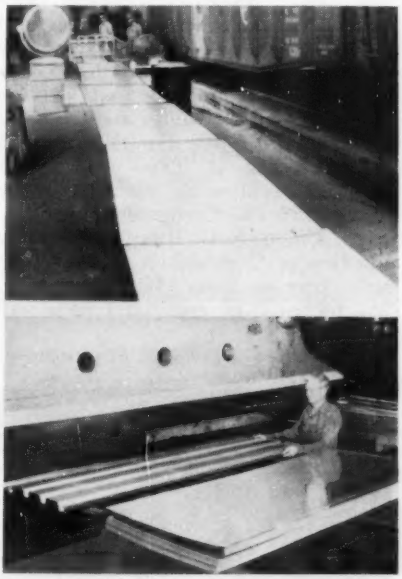


Fig. 1—(Top photo) Applying Peel-Kote to aluminum sheets prior to forming. (Below) Coated sheets are formed prior to anodizing.

lowed to stand for approximately 8 hours before being drawn.

Peel-Kote MC is a product of Munray Products, Inc., 12400 Crossburn Avenue, Cleveland 11, Ohio.

Automobile Tail Pipe Assembly Made from Stainless Steel Tubing

FOR the first time, an automobile manufacturer is using stainless tubing for the entire extension assembly muffler and tail pipe on a 1954 model car (Fig. 1).

Making the assemblies from stainless steel is said to give them more resistance to rust formation, chemical attack and subsequent corrosion. The tubing is subjected to acids formed by exhaust gases, salt poured on the streets during the winter and temperatures up to 800 deg. F.

The tubing is Type 304 (18-8) stainless supplied by the Alloy Tube Division of The Carpenter Steel Company, Union, N. J. It is fabricated by the George C. Knight Company, Detroit, from sections 13⅜ inches long, 2½ inches O.D. and 0.032 inch wall thickness.

Ten steps are involved in transforming the part from plain tubing to the finished assembly (Fig. 2). The O.D. is hydraulically reduced at one end; the opposite end is curled; tabs are cut, flattened and pierced; an exhaust escape hole cut; a baffle plate spot welded inside the tubing; tail pipe belt polished and finish buffed, and resonator riveted to exhaust tabs.

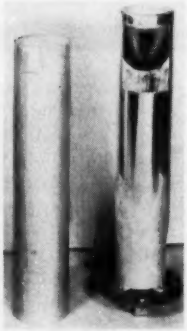


Fig. 2 — The original stainless tubing (left), contrasted with the finished, polished product ready for installation (right).

Schick Trims Costs With Detrex Ultrasonic Degreaser

THE use of a fully-conveyorized ultrasonic metal-cleaning machine in the electric shaver plant of Schick, Inc., Stamford, Conn., has reduced labor costs "in excess of 25 per cent."

"In addition," reports T. N. Garry, Schick plant manager, "there have been important costs savings realized

Fig. 1—Arrows indicate the exposed end of stainless tubing tail pipe assembly extending through the plastic body of this sports car.

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Save money—with new

Type 1300 KIMWIPES!

Here are the modern, disposable wipers that actually replace ordinary wiping material—and cost four to ten times less!

Kimwipes 1300 are soft, strong and absorbent. A full 12″ x 18″, they hold up to 8 times their own weight in liquids. They're non-abrasive, too. There's no holdover of metal chips or other infectious materials that cause dermatitis. New 1300 Kimwipes are absolutely clean to start with and are disposed of after use. Ask your salesman for samples, today!

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Kimwipes

Kimberly-Clark Corporation • Neenah, Wis.

through the elimination of rejects by cleaning or lack of cleaning of finely-machined shaver parts, and hand brushing prior to inspection has been completely eliminated."

Garry pointed out that in his opinion Schick's most important benefit, obtained when it converted to an ultrasonic cleaning operation in April, 1954, was increased quality.

He also reported that the ultrasonic cleaning process, performed by a Detrex Soniclean machine manufactured by the Detrex Corporation of Detroit, reduced poor work in other subsequent operations, and made inspection much easier and more thorough.

In the Detrex Soniclean process, electrical energy is converted into high-frequency sound waves which "scrub" the parts to a degree of cleanliness never before achieved on a production basis.

Using a trough-type barium titanate transducer directly immersed in a degreasing solvent, particle acceleration of 1,500,000 times the force of gravity is achieved in the focal region.

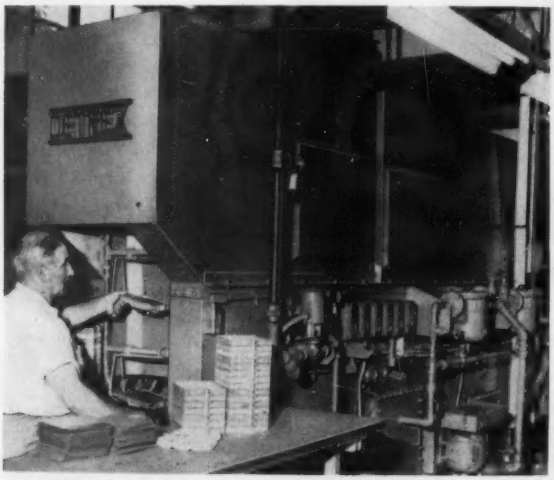


Fig. 1—Operator places tray of finely-machined electric shaver parts on the conveyor of a Detrex Soniclean machine in the Stamford, Conn., plant of Schick, Inc.

Removal of Zinc Phosphate Primer Coatings

A misunderstanding of specifications recently led to a solution of the problem of removing zinc phosphate primer coatings from steel pieces which had resisted paint strippers.

A customer of an enameling shop had ordered a priming coat to be put on cup-shaped steel pieces. Through a misunderstanding, the shop coated only the outsides of these cups, leaving the insides untouched. A large quantity was primed and coated before the necessity of priming the inside surfaces was called to the attention of the enameler. He was then faced with the job of stripping the finished cups prior to repriming and repainting.

The outside coating on the exterior of the cups came off readily with the alkaline paint remover used in this shop, but the phosphate primer proved very stubborn. It resisted not only this alkaline remover, but emulsifiable solvent cleaners, acids and other stripping solutions.

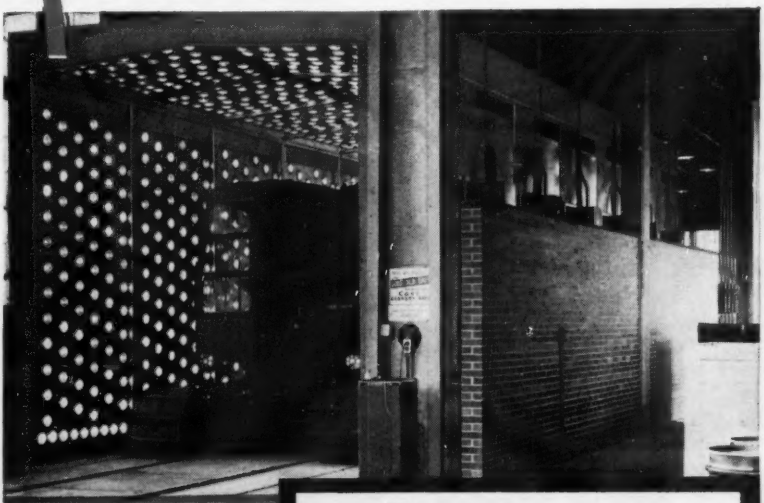
One of the products of the Magnus Chemical Company, of Garwood, N. J. — Magnus

Baking, drying of large equipment and small parts calls for size, versatility

Size and versatility in an oven are a necessity when baking and drying paint on all sizes of Army Engineer equipment.

The Jensen Infrared Lamp Oven below is located at the Army Engineers Depot, Marion, Ohio. It is constructed in seven sections which are controlled individually. The oven is capable of processing large construction machinery such as cranes and graders, or may be used sectionally for smaller pieces; thus offering a real savings in electricity.

Jensen Infrared Lamp Ovens are built to specification for baking, drying, pre-heating, and curing. Write for details.



This Jensen Infrared Oven has 2,016 lamps in its seven individually controlled sections. Work chamber is 11' 8" high, 12' 4" wide, 40' 10" long, and is completely ventilated.

Jensen
SPECIALTIES, INC.

INFRARED OVENS

9333 Freeland Ave., Detroit 28, Mich.

REPRESENTATIVES IN PRINCIPAL CITIES

81XX — is designed to provide a light phosphatizing solution which also works as a rust remover. The shop superintendent, after trying to remove the prime coat, decided that it was on the cups to stay, and therefore put a batch of cups into a solution of Magnus 81XX in order to give them a light etch, prior to giving them an all-over phosphate priming.

Then it developed that the old prime coat rolled right off the pieces in this solution. The entire lot of rejects was quickly stripped.

This treatment opens up an easy solution to the problem of removing phosphate primers. The 81XX solution, used in a hot tank, readily removes the prime coat and leaves the metal in excellent condition for any required finishing operation.

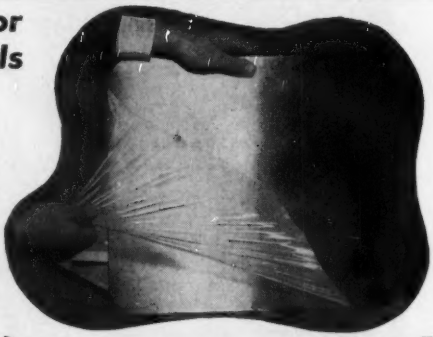
Based upon announced expansion programs, the production capacity of the nickel industry of the free world by 1960 should be at least 75 per cent greater than that existing in 1949, the year prior to the start of the Korean conflict, when production of nickel totalled about 265,000,000 pounds.

Through the use of new techniques and new plating equipment, steel pipe can now be internally plated with nickel. This nickel-coated pipe, which combines the corrosion-resistance of nickel with the structural strength of seamless piping, is the solution to many corrosion and contamination problems.

Kitchen appliances, such as waffle irons and electric toasters, owe much of their attractive, easy-to-clean appearance to nickel-chromium plating and their long life to nickel-chromium heating elements.

A Strippable Plastic for the Protection of Metals

Striplastic is a protective plastic applied by spraying, dipping or rolling. It is used on stainless steels, high polished metal sheets, sheets in cold working or drawing, tools, dies and parts, and on sheets or metal parts before packaging. It protects against scratching and abrasion, and against rust. Also available as a booth coat protection.



THE STRIPLASTIC COMPANY
10828 QUEBEC AVE.
CLEVELAND 6, OHIO

Among many advantages, it is non-toxic, possesses great tensile strength and is easily stripped off in one piece. Write for complete information on this new strippable plastic.

BULLETIN FAC-100

H-VW-M Full Automatic Conveyors

an album of progress in mass-production finishing . . . electroplating, metal cleaning, anodizing, phosphating, stress relief and pickling.

HANSON–VAN WINKLE–MUNNING COMPANY, MATAWAN, NEW JERSEY

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SINCE 1820

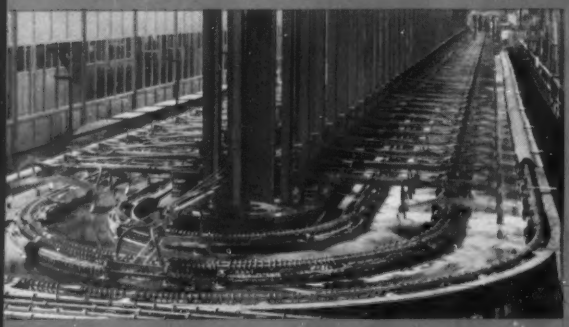
There's an H-VW-M full automatic conveyor for every production application requiring automatic cycling of individual treatments through tanks including:

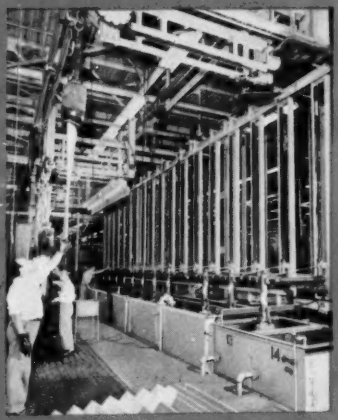
electroplating
metal cleaning
anodizing
phosphating
stress relief
and pickling

The requirements of the inorganic metal finishing industry place a premium on the operational flexibility, broad range of application, and the engineered precision of its equipment. Recognizing this, H-VW-M design engineers have placed special emphasis on incorporation of all of these features—in maximum degree—in H-VW-M full-automatic metal processing conveyors.

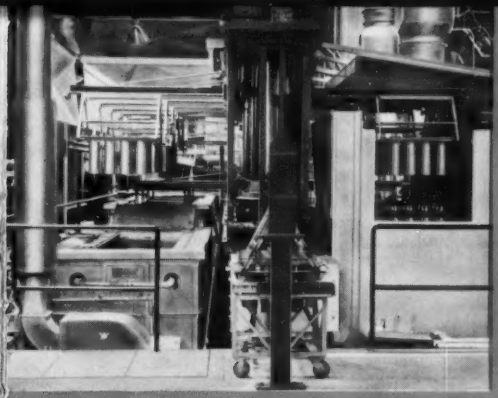
Check the following pictures and their brief story-captions carefully, for they have been particularly selected to indicate the scope of application of H-VW-M Full Automatic Conveyors. *Right here* are the performance-proved, engineered answers to a host of common problems in volume metal finishing.

from the largest to the smallest — in processing parts and automotive steel stampings this full automatic plating conveyor takes 'em all. This one machine has an operating solution capacity of 84,000 gallons—one of the world's largest for a single unit.

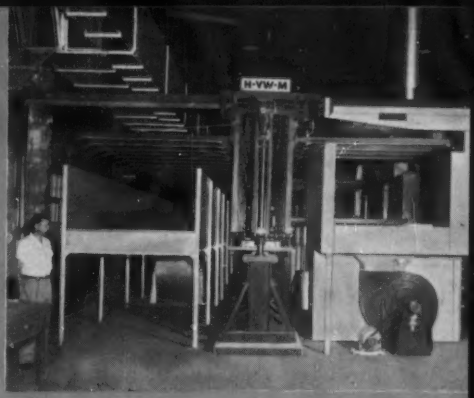




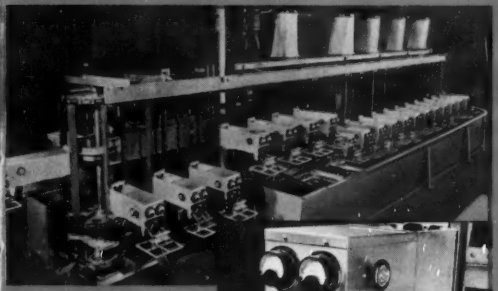
highest lift — for a return type conveyor, raising 300-lb. steel propeller blades a full ten feet during zinc plating cycle. To obtain correct blade balance and heavy zinc deposit, the blade transfers automatically to auxiliary conveyor chain for required recycling and automatic reload.

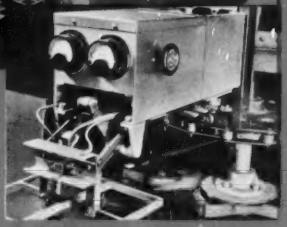


automation in stress relief . . . as well as other treatments can be accomplished through intermittent cycling, as with these steel shell cases which move between oil bath (left) and hot-air blast dryer. *Automatic loading* from and into the same truck, shown in foreground.

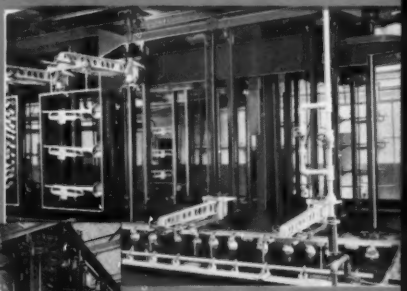


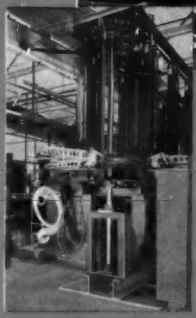
then to paint prep . . . where another H-VW-M conveyor cleans and pickles, drys and cools these same 300-lb. carrier loads of shell cases prior to spray painting. A typical return-type full-automatic does the job, loading and unloading at opposite end of conveyor. Cooler at left, 300°F. dryer at right.



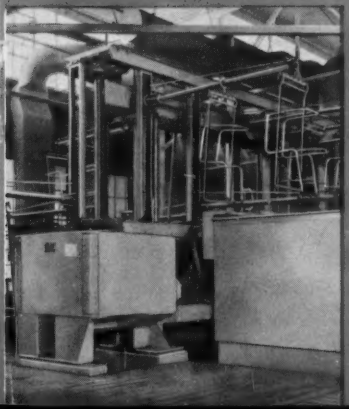


where precision is paramount . . . and minute tolerances of a uniform deposit must be maintained on each separate part, each carrier operates independently. Proper instruments, variable resistors, bi-polar circuits, and mechanical agitation of work in solution are all handled through independent controls on each carrier, as shown in inset.



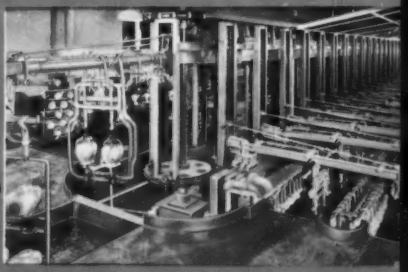


variable load capacity . . . is an essential when the same machine handles musical instruments of all shapes and sizes. Note the interior anode arrangement designed to allow complete plating of the all-important bellmouth. Inset shows a complex-shaped Sousaphone after heavy silver deposit.

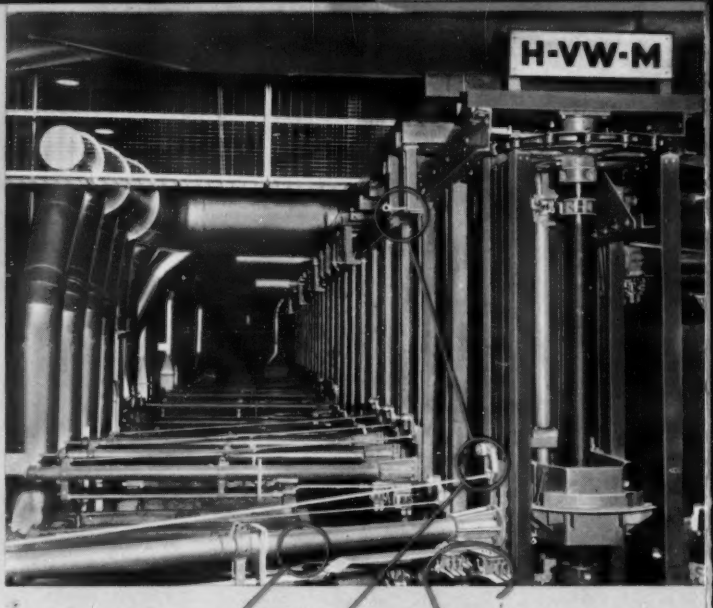


adaptable for bulky loads . . . this high-lift, full-automatic conveyor handles clumsy, tubular steel furniture frames with ease. Notice the long arms, with adequate spacing between them to accommodate the bulkiest and most irregular shapes.

plating versatility . . . is the answer to the plating requirements of these attractive modern coffee makers. Like many other holloware appliances they are plated inside and outside by separate circuits. Notice the internal anode feature on the racks, and current collector fingers at the framework end of the arms.



and for features



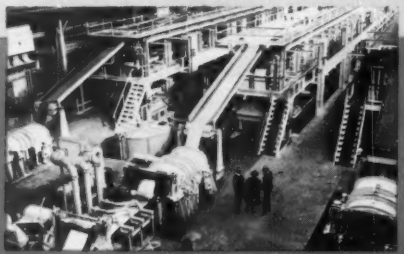
Highlighted in the photo are the engineered keys to flexibility of operation, multiplicity of applications, and versatility of product and treatment range. All of these features are incorporated in the H-VW-M Full Automatic Electroplating Conveyor.

1. The elevator lifting member (not visible) is a *first* with H-VW-M, raising carriers at all transfer points by means of a single track or flipper. Any station on the conveyor can therefore become a transfer point between adjacent treatments. In combination with the rigid carrier arm, this elevator method has permitted a wide scope of applications, unlimited by space, height, weight, or lift. Loads can be tipped or rotated in solution, or tipped to drain during transfer. Automatic transfer to an auxiliary chain system, dolly, or truck is also possible; or, for specific requirements, automatic load and unload on permanent racks is within the scope of application.

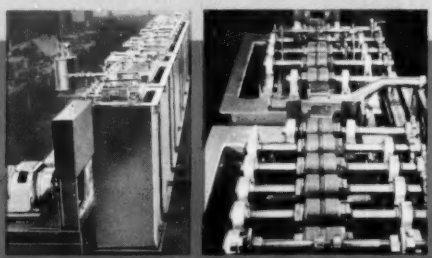
2. Rugged pipe-arm carrier is sturdily built for support of heavy or light loads, yet engineered for free movement in guide channels, high or shallow lifts.

3. The overhead "by-pass" track will hold carrier loads in elevated position in by-passing certain treatments. Can be set manually or automatically to engage the roller of each carrier. This feature is also used to lock all carriers in elevated position for service of tank or solution. Another of the many combinations possible with this free-moving rigid arm and by-pass mechanism is serving as a pick-up point during travel through a plating bath, thereby providing two or more distinct plating time intervals, or two or more controlled deposits. Continuity of production, rate of flow, and other essential operating conditions would remain undisturbed.

4. Unique, self-lubricating, spring tension collector fingers for both positive and negative DC circuits. Here the inside and outside of shell cases are zinc plated, each on a separate circuit.



In the continuous plating of metals H-VW-M has pioneered. The strip steel production operation shown includes an H-VW-M tin plating line which continually deposits an even coat of tin on the steel strip at speeds up to 1000 feet per minute.



Here is another good example of the versatility of H-VW-M automatic electroplating equipment—a specially engineered conveyor for depositing a chromate finish on zippers already fastened to cotton tape. Entire operation is automatic.

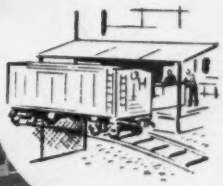
H-VW-M

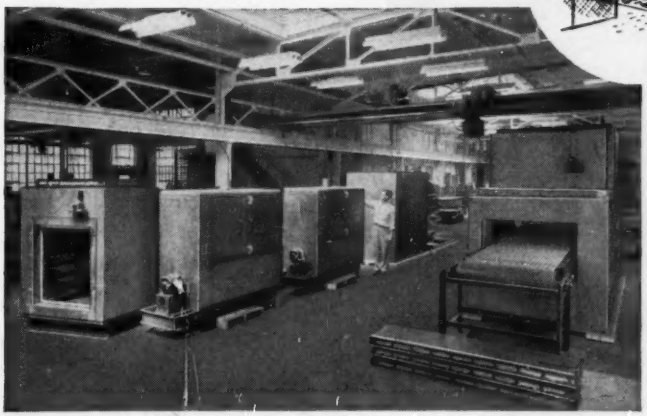
HANSON–VAN WINKLE–MUNNING COMPANY, MATAWAN, NEW JERSEY

PLANTS: MATAWAN, NEW JERSEY • ANDERSON, INDIANA • GRAND RAPIDS, MICHIGAN

KIRK and BLUM Industrial Ovens

Ready To Go!





Many KIRK & BLUM Industrial Ovens, although designed and built to specifications, are shipped completely assembled and tested, ready to operate. Once "spotted" in your plant, they can be connected and in operation in a few hours, saving time, expense and confusion.

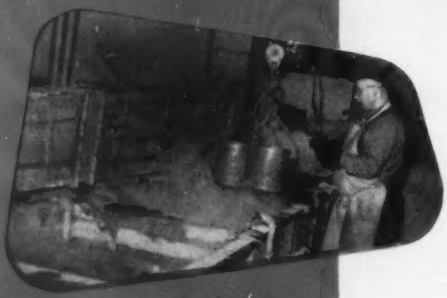
Illustrated is a representative group recently shipped to well known industrial firms. From right to left: core-mix drying oven. Two moisture evaporation ovens for chemical powders. Moisture removal oven for carbon electrodes. A conveyorized oven for drying insulating varnishes.

For information or literature on any of these products write The Kirk & Blum Mfg. Co., 3116 Forrer St., Cincinnati 9, Ohio.

KIRK AND BLUM
INDUSTRIAL OVENS

• Industrial Ovens • Fan Systems for Various Industries • Dust Collecting Systems in Metal Industries.

POLISHING



CLEANING

PLATING

FINISHING

New • EQUIPMENT • MATERIALS • PROCESSES

Barrel Nickel Brightener

Designated "Brite-Barrel Nickel Solution" and developed for use with either hot or cold nickel plating processes, a brightener for barrel nickel plating has been developed by Thor Chemical & Equipment Corp., 77 S. 5th St., Brooklyn 11, N. Y.

The manufacturer states that the Brite-Barrel Nickel Solution produces uniform brightness throughout the plating load, and is compatable with any nickel solution in commercial use. Use of the product makes it possible to plate bright in recesses. The brightener may be used for original solution preparation and replenishment. It will not discolor or stain, it is claimed.

For further data circle No. 1 on Reader Service Card inside back cover.

Spray Washer

An entirely new concept in spray washers has been developed by the Detrex Corporation of Detroit, Mich.

W. F. Newbery, director of sales for Detrex, has announced that the Series 30, Standard Unit, Monorail-Type Spray Washer is the first washer that can be used as a single unit or combined on the premises into a multi-stage washer to suit the needs of the user without major alterations or assembly problems.

Units can be assembled on the premises, either by bolting or welding, and offer a wide variety of combinations. A range of sizes from a spray length of 4 ft. up through 10

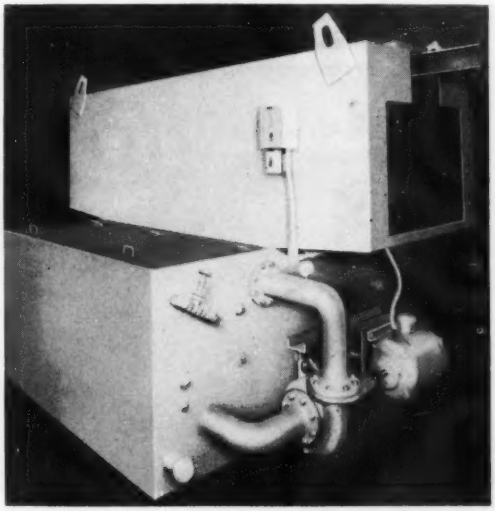
ft. in two-foot steps is available. Each washer unit, set up for gasketing, will accommodate work up to 30 inches wide—with the additional convenience of removable baffles to reduce width where operating economy calls for a narrower opening. Seven different heights are available in the washer openings: from 24 inches upward in 6 inch steps to the maximum height of 60 inches. The user also can vary the silhouette with synthetic rubber curtains which protect against overspray and aeration.

The tanks themselves are constructed of 3/16 inch steel plate with reinforced bottoms and hold 600 to 1,000 gallons of solution.

Spray nozzles are mounted on swing-ells and are adjustable for most effective contour spraying of any surface. Nozzle orifices are large and are protected with screening one-half the size of the nozzle opening, thereby reducing nozzle cleanup to a minimum. Access to the spray bank is through a large door, gasket sealed, and equipped with toggle clamps.

Pumps and motors are located away from the aisle space. The pump has double ball bearings, open ball bearing motor and starter and is rated to handle liquids at elevated temperatures of 160 to 180 deg. F. Piping from the pump to the spray headers has flanged connections to permit easy removal of pump or header and has only one 90-deg. bend, ensuring maximum pressure at the heads. Protection screens ahead of the pump are easily accessible for cleaning.

Either steam or gas may be used for heating the solution. The steam units are designed to operate on pressures from 50 to 125 pounds and ample radiation is assured by the use of multiple pass steam coils. The units designed for natural or manufactured



Detrex Series 30 Monorail-Type Spray Washer

gas operate on pressures from two to sixteen ounces and are equipped with immersion heating tubes complete with aspirator-mixer, pressure burner and all necessary safety equipment.

Tank skirts extend flush to the floor with no ledges or platforms to accumulate dirt. Ninety per cent of the tank bottom of steam machines can be reached with a hoe. Gas immersion coils are also spaced to provide ease of scraping and hoeing. A scum overflow trough is standard equipment. Exit, entrance and drain zone sizes are designed to eliminate overspray.

The Series 30 Standard Unit Monorail-Type Spray Washer is designed for use in producing phosphate coatings of the iron-phosphate type. Washers for zinc-iron-phosphate use will be available shortly.

For further data circle No. 2 on Reader Service Card inside back cover.

Automatic Electroplating Machine

Frederic B. Stevens, Inc., has announced the development of a Full Automatic Side Arm Type Machine for electroplating or allied finish processing. It supplements the existing Stevens line of automatic rack and barrel type plating and/or processing equipment.

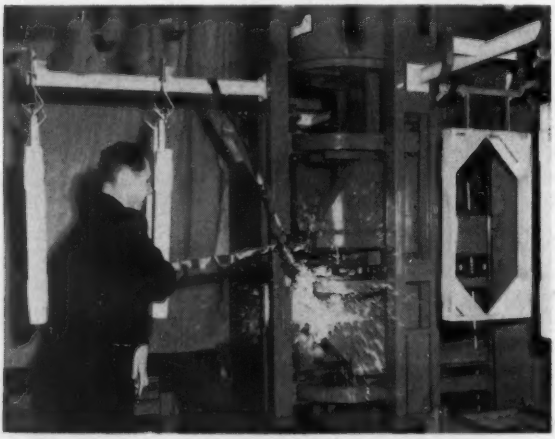
The automatic processing or plating machine was christened the "Stevadoer" by Stevens Chief Engineer James Barton, who also designed the unit, in an unveiling ceremony for the entire Stevens metal finishing division sales force.

The Stevadoer incorporates modern design features which will meet today's requirements of low head room —high lift. It also offers Stevens delayed set down methods and the new projected safety requirements. The transfer method provides for automatic load and unload.

In designing the new machine, Stevens engineered new units for automatic load and unloading modern standard shop conveyors in connection with either single or double row type processing machines.

Racks can be conveyed to the load station of the plant's automatic rack-type processing equipment, loaded, processed, unloaded and transferred to the next manufacturing stage automatically.

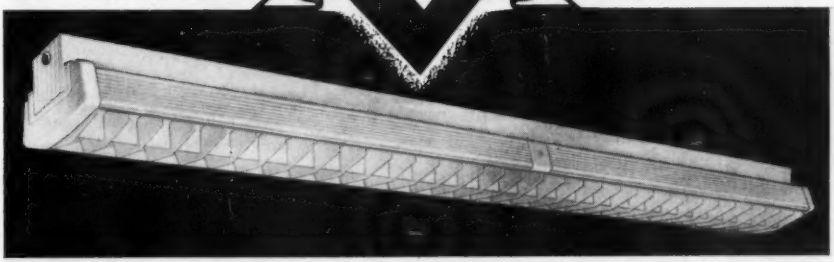
Further information may be obtained from Frederic B. Stevens, Inc., 1800 18th Street, Detroit 16, Mich., or by circling No. 3 on Reader Service Card inside back cover.



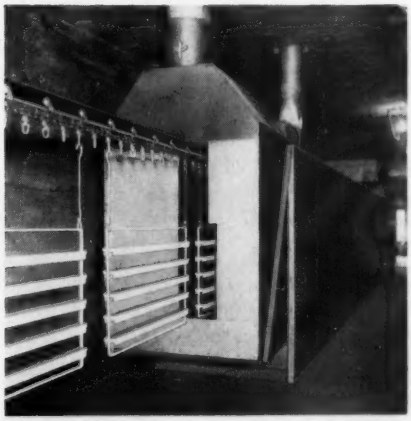
Stevens Chief Engineer James Barton, designer of the new Stevens "Automation Concept" Full Automatic Processing and Electroplating Machine breaks a bottle of champagne in christening the new equipment the "Stevadoer." This new machine also pioneers with new "Automation Concept" load and unload equipment for materials handling cost reduction.

Here's a Real

VIRDEN VALUE



in this MODERN "Streamliner" LIGHTING FIXTURE



ENAMEL DRIED IN A CONTINUOUS LANLY FINISHING OVEN

Eye appeal and product "Sale-ability" of this attractive Virden fixture are greatly enhanced by the smooth, lustrous coating of white synthetic enamel on certain component parts.

Drying is rapidly and economically accomplished in a LANLY gas-fired, continuous oven at 300 degrees F.

Precise, volume production is a routine matter at Virden.

YOU, TOO, CAN DO A BETTER JOB WITH LANLY OVENS

Write today for details and let us show you how!

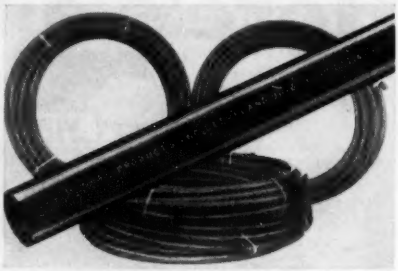
LANLY
FINISHING OVENS
THE LANLY COMPANY • 770 PROSPECT AVE
CLEVELAND, OHIO

Flexible Plastic Pipe

The production of a polyethylene-base flexible plastic pipe designed to eliminate the deteriorating effect of sunlight, encountered with present types of polyethylene pipe, has been announced by W. A. Munkacsy of Munray Products, Inc.

Flexible, lightweight Munray pipe is produced from pure virgin materials and contains no anti-oxidants or pigments to make it toxic.

This advance in the 10-year development of plastic pipe carried on by Munray Products, in conjunction with raw material manufacturers, has resulted in a single type of non-toxic, non-contaminating flexible pipe usable in buried as well as above-grade installations in all types of industrial, chemical and food processing applications, within its temperature and pressure properties. (As an example, Munray ¾-inch pipe is recommended for continuous working pressures up to 176 p.s.i. at 75 deg. F.) Munray pipe can be used to convey potable liquids, slurries, and chemicals, and is also suitable for use as electrical conduit.



Munray Flexible Plastic Pipe

Additional features beyond the advantages of sunlight resistance and non-toxicity include an unconditional guarantee against electrolytic corro-

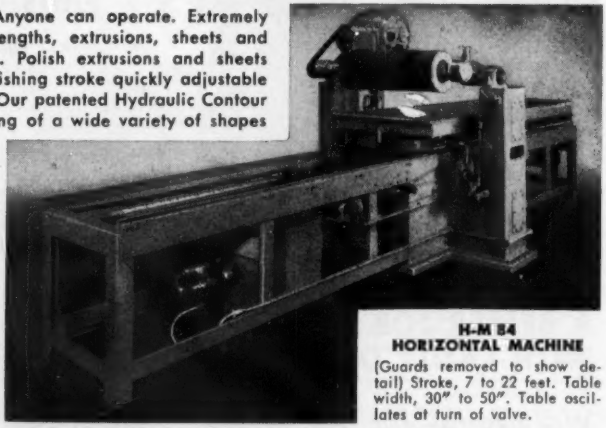
Improve Quality — Reduce Finishing Costs with CENTRAL POLISHING MACHINES

Hydraulically operated. Anyone can operate. Extremely versatile. Handle long lengths, extrusions, sheets and many odd-shaped pieces. Polish extrusions and sheets their ENTIRE LENGTH. Polishing stroke quickly adjustable 2 inches to full capacity. Our patented Hydraulic Contour Device permits the finishing of a wide variety of shapes and contours.

- Polishes extrusions and sheets complete, end to end.
- Adjustable stroke 2" to full capacity. Machines, 7 to 22 foot stroke.

Also Double Roll Vertical Models.

FULL INFORMATION ON REQUEST.



H-M 84
HORIZONTAL MACHINE
(Guards removed to show detail) Stroke, 7 to 22 feet. Table width, 30" to 50". Table oscillates at turn of valve.

CENTRAL MACHINE WORKS

72 COMMERCIAL ST. • WORCESTER, MASS.

Rotating Cathode Boosts Chrome Plating Up To 5700 Pieces Hourly!

LASALCO'S

Circular Chrome Plater

Lasalco's latest chrome plater with its continuously moving cathode offers some extraordinary cost-cutting and time-saving possibilities for increasing your output of pieces up to 3" long. Here are just a few of its many advantages:

- **One-man loading**
- **Fully automatic unloading**
- **No racks or rack upkeep**
- **Easily raised driving mechanism and cathode wheel gives quick access to coils and anodes. Any parts dropping into tank can be easily, instantly recovered.**
- **Unusually high production—5,733 pieces per hour at 13 seconds; 4,188 pieces hourly at 18 seconds; 2,635 pieces at 29 seconds. Minimum output, 420 pieces at 3 minutes.**
- **Machine is delivered complete, ready to install, and requires only necessary electrical connections and exhaust duct.**

Lasalco's Circular Chrome Plater can be a real profit builder. Write immediately for all the details.

SPECIFICATIONS

Cathode Wheel Diameter 30"; 31 Fingers, 3" Centers
Effective Plating Travel 68.4"; No-plate Travel 25.6"
Anode Rods 24" I.D.; 36" O.D.; ½" Diameter
Center of Anode to Cathode Center 4"
Anodes, Flat 6% Antimonial Lead ¼" x 8" Three 26" Long; Two 24" Long, Two 2" Long; One 5" Long.
Tank Diameter 54"; Depth 14"
Solution Capacity 115 Gals., 2" From Top
Heating: ¼" I.D. 8% Antimony Lead Steam Coil
Drive: ¼ H.P., A.C. Motor; Variable Speed Reduction

LASALCO, INC.

HOME OFFICE
2820 LaSalle Street
St. Louis 4, Missouri
Prospect 1-2990

EQUIPMENT, CHEMICALS AND SUPPLIES FOR ELECTROPLATING, ANODIZING AND POLISHING

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501 West Eighth Street
Irving (Dallas), Texas
Phone: 3-4921

sion, rust and rot; extremely low friction loss; no interior buildup; and immunity to the effects of corrosive waters, soils, and a wide range of chemicals including most solvents. Munray pipe is flexible enough to permit bending around most obstacles without kinking and is light in weight.

Munray all-purpose plastic pipe is furnished in 9 standard sizes up to 6 inches in diameter, and a complete line of Munray fittings is available for fast, easy installation.

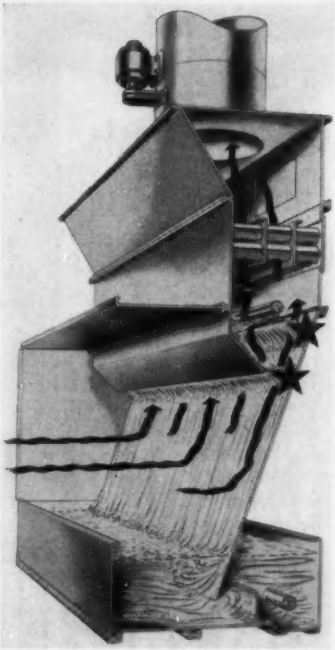
Additional information available from W. A. Munkacsy, Munray Products, Inc., 12400 Crossburn Avenue, Cleveland 11, Ohio, or by circling No. 4 on Card inside back cover.

Water Wash Spray Booth

One of the most recent developments of the Binks Manufacturing Company is a water wash spray painting booth designed for economical use in normal industrial production. It is called the Style "D" Booth.

According to the manufacturer, this booth meets the requirements of fire, health and state authorities.

This booth supplements the Type DUC high production water wash spray booth introduced by Binks last year. The Style "D" Booth is not designed to compete with the extremely high efficiency of the DUC Booth. The Style "D" Booth will find its greatest acceptance in those plants which require a good, low-cost, approved exhaust system for general use.



Binks Style "D" Water Wash Paint Spray Booth

Overspray and fumes from painting operations are drawn through two separate, thorough washing operations. Velocity of the air passing

POCKET **HANDI-GAGE**

A MAGNETIC THICKNESS TESTER

for electrodeposited, hot-dipped and painted coatings on steel. No bigger than a fountain pen, but what a job it does! Tests plated, painted, enameled, or plastic laminated coatings in SECONDS—in the lab or on the production line. Accurate, quick and easy to use.

Platers Research CORPORATION

59 EAST 4TH STREET — NEW YORK 3, N. Y.

YOU GET MORE WITH ALL-PURPOSE "TRICLENE"* D

(TRICHLORETHYLENE)

New Du Pont solvent is unsurpassed in any vapor degreasing job!

Check these extras

EXTRA DURABILITY. With the greatest all-around ruggedness ever built into a trichlorethylene, *new* "Triclene" D has unsurpassed resistance to *all* major causes of solvent breakdown—heat, light, air, metal chlorides, and acidic materials—yet contains nothing to harm the most delicate metal surfaces.

EXTRA OPERATING ECONOMY. Because *new* "Triclene" D is free from salt-forming inhibitors and staining materials, you get safe, thorough cleaning with fewer costly rejects—fewer interruptions for cleanouts. Made with locked-in stabilizers, *new* "Triclene" D retains its original ruggedness even after repeated use and distillation.

EXTRA CONVENIENCE. *New* "Triclene" D is an all-purpose solvent, built to give you dependable performance in any vapor degreasing job. This means you can buy just *one* brand of solvent for any type degreaser—for any class work.

Try *new* "Triclene" D and see why we consider it the greatest improvement ever made in any trichlorethylene for vapor degreasing. Your Du Pont representative will be glad to give you further details on *new* "Triclene" D. Call him today or fill out and mail coupon below.

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BETTER THINGS FOR BETTER LIVING . THROUGH CHEMISTRY

SEND FOR THIS NEW DESCRIPTIVE FOLDER

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Electrochemicals Department, Wilmington 98, Del.

☐ Please send me your descriptive folder on new, all-purpose "TRICLENE" D.

☐ Please have your representative call with the details.

Name _____ *Position* _____

Firm _____

Address _____

City _____ *State* _____

through the wash chamber never exceeds 600 f.p.m. and, as a result, utilizes the full efficiency of the water action. This scrubs the atomized paint pigment and vehicle from the air and deposits them in the collecting pan.

The cleaned air then passes through a series of staggered arrestor plates which remove free moisture before the air is exhausted to the outside. Stacks and fans stay cleaner longer. Fire hazard is greatly reduced.

The circulating pump forces water from the collecting pan through a special manifold which sprays it in two directions in an unbroken curtain. Excess water passes the manifold and returns to the collecting pan. This continuous circulation flushes the manifold and eliminates clogging. Once the booth is in operation no water is required except to replace that lost through evaporation . . . a small fraction of one per cent.

Booth cleaning time is reduced because overspray striking the curtain is washed into the collecting pan which forms the base of the spray booth.

This pan acts as a reservoir for the recirculating pump and as a collection place for vehicle and pigments. The pan is divided into two chambers by a removable divided plate. This plate traps most of the paint pigment in the front section where it can be easily reclaimed. Water reaching the circulating pumps is substantially free of paint sludge.

Valuable floor space is saved because the overall depth of the Style "D" Booth is smaller. These booths are furnished in standard sizes ranging from 4 to 20 feet in width and from 7 to 12 feet in height. Additional working depth may be added. Provisions are also made for conveyor systems.

Prices, dimensions and capacities of

Only PARAMOUNT Felt Wheels do so many finishing jobs so well

Just 1 PARAMOUNT Wheel does all three:

BUFFING

Choose a Paramount Felt Wheel for your highlight buffing and enjoy finishes produced to your specifications . . . and get longer trouble-free service from your wheel too! Or use the same wheel for —

POLISHING

Set up your wheel with abrasive grains (120-320 grit) for streakless polishing or with greaseless compounds for satin finishes. Or use your wheel as a —

CONTACT WHEEL

Whether you're using belts for polishing or finishing, the wide range of sizes and densities of Paramount Felt Wheels make them ideal for your most exacting work.

Learn what the versatility of Paramount Brand Wheels can mean to your work and your finishing costs. Call your Supply House today for details.

New Catalog Answers your questions about felt wheels

Just off the press — a new 12-page catalog crammed with authoritative finishing information. Send for your free copy today.

Boacon Felt Company

447 WEST WATER STREET • TAUNTON • MASSACHUSETTS

Established 1825 "Felt Does It Better"

develops a new approach to SURFACE FINISHING

ROTO-FINISH has now extended the original barrel finishing process to include entirely new special fixtures machines and equipment. These machines represent a radically new departure from the generally accepted conception of barrel finishing machines, made possible only by Roto-Finish extensive experimental facilities and long experience with modern, precision surface finishing processes. And these new special fixture machines prove that there are no limits to the size or shape of parts which can be successfully processed with proper equipment, materials and methods.

The new engineering developments which have taken place in the Roto-Finish laboratories open the door wide to entirely new applications and entirely new principles in mechanical surface finishing. Therefore, whatever your finishing problem, we urge you to ship us two finished and several unfinished samples of parts you may wish to have us process in our laboratories. Remember, Roto-Finish guarantees the same result in your shop, as on the samples processed in their laboratories.

Get this new FREE CIRCULAR

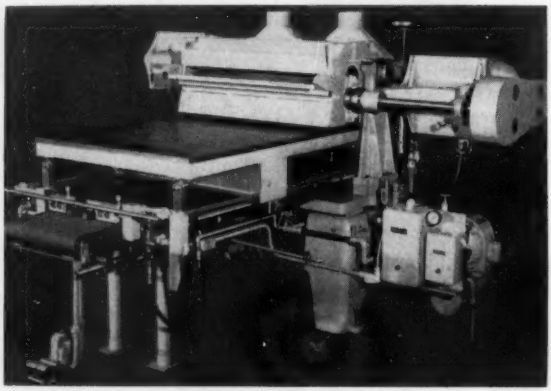
Roto-Finish COMPANY

3704 MILHAM ROAD, KALAMAZOO, MICH.

P. O. Box 988 — Phone 3-5578

It's the finish that counts

Clair Model 203-C Surface Finishing Machine



the Style "D" water wash spray booth can be obtained by writing to the Binks Manufacturing Company, 3122 Carroll Avenue, Chicago 12, Ill., or by circling No. 5 on Reader Service Card inside back cover.

Surface Finishing Machine

A heavy-duty surface finishing machine with a vacuum chuck for processing non-magnetic products has been developed by Clair Manufacturing Co., Inc., Olean, N. Y.

The Clair Model 203-C was designed to provide greater capacity in the surface finishing of automobile trim and name plates for refrigerators, stoves and other appliances. It is recommended for processing items made of brass, copper, silver, plastic, and aluminum.

Either automatic or semi-automatic cyclic actuations can be obtained. The vacuum table is a 40 by 48 inch unit. Design of the vacuum chuck is such that even small items can be held and surface finished without interference, with coverage over the entire surface.

An added safety feature is the fact that failure of negative pneumatic chucking pressure stops the machine. Should vacuum drop below any safe predetermined setting the roll is automatically lifted from the work and all actuations stop instantly.

In the Model 203-C the floating buff will follow curvature of work at any uniform preset contact pressure. Both speed of table travel and buff pressure can be adjusted for individual predetermined values with respect to stroke in direction with and against rotation of the buff.

Additional details on the Clair Model

UDYLITE SERVICE
DOESN'T COST—IT PAYS

These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.

PLANNING ON NEW EQUIPMENT?
Getting the right answers to space requirements, production uniformity, current economies, and reduction of rejects will pay off in bigger profits. Our engineers have years of "know-how." They'll be glad to share their experience — free. Just write to—

WORLD'S LARGEST PLATING SUPPLIER

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

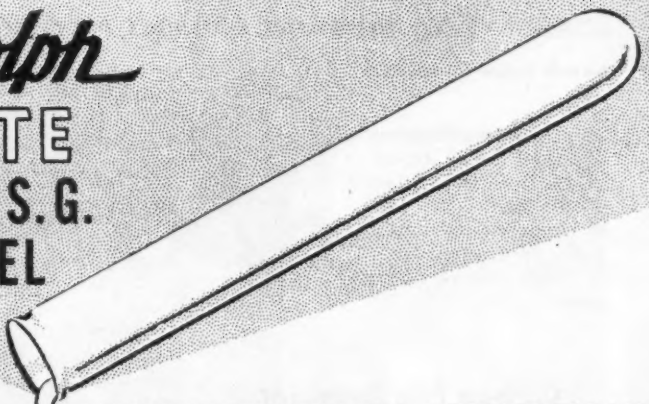
For a real good polishing job use

Keystone TURKISH Emery

FRESH SUPPLY AVAILABLE

KEYSTONE EMERY MILLS Write for Sample 4316 Paul St., Phila., Pa.

Randolph WHITE BAKING S.G. ENAMEL



FOR VARIOUS SPECIALTY APPLICATIONS IN INDUSTRY . . .

- REFRIGERATORS
- WASHING MACHINES
- KITCHEN CABINETS
- HOUSEHOLD EQUIPMENT
- VENETIAN BLINDS
- AIRCRAFT

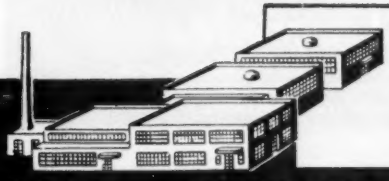
Out of Randolph's extensive experience and continuous research has come this remarkable finish exactly suitable for a wide variety of products. For equipment as different as Venetian blinds and airplanes, this enamel provides a surface coating with unexcelled qualities—

Faultless uniformity
Tough durability
Staunch protection
Striking eye appeal

Highly essential, too—outstanding Randolph service makes deliveries to you promptly for normal or rush-order production.

Let us show you what this enamel can do for your product.

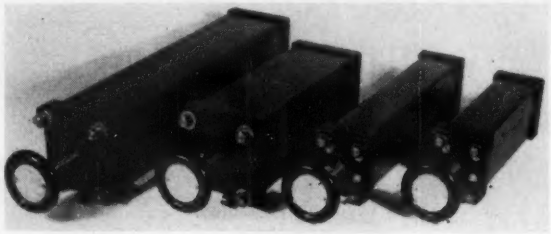
Write us today!



RANDOLPH
PRODUCTS COMPANY
CARLSTADT, NEW JERSEY

DOPES · LACQUERS · ENAMELS · THINNERS

H-VW-M Carbon Pile Rheostats



203-C Surface Finishing Machine may be obtained from Clair Manufacturing Co., Inc., 1010 S. Union St., Olean, N. Y., or by circling No. 6 on Reader Service Card inside cover.

Carbon Pile Rheostat

An improved carbon pile rheostat has been announced by Hanson-Van Winkle-Munning Co. Built on a unique principle of construction, the H-VW-M rheostats are considerably more compact than conventional carbon pile rheostats and perform better, especially at high amperages.

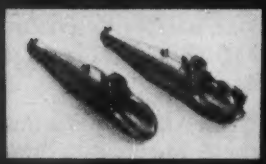
Designed for use in electroplating installations, the new rheostats however could be used in any low voltage, high current application where stepless control is desired. This would include, among other things, general testing work—testing automotive and aeronautical equipment, for example.

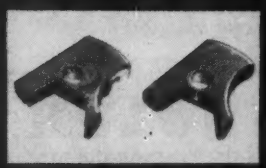
The H-VW-M rheostats are built of rectangular carbon plates formed in a single pile and housed in a one piece steel box. They are rated from 25 to

ALMCO Supersheen SPEED FINISHING

BARREL FINISHING ABRASIVE COMPOUNDS

THE RIGHT COMPOUNDS FOR YOUR SPECIFIC NEEDS— WITH THE RIGHT CHARACTERISTICS FOR BEST RESULTS





Supersheen Abrasive Compounds are formulated for use with *all types* of barrel finishing machines – they produce an infinitely *superior* grinding action – and can be used with *all types* of chips or metal media. They will increase the cutting action of any chip – and long-lasting qualities reduce your compound cost.

Send today for complete details of Almco Supersheen Compounds. Over 40 different standard types.

ALMCO Supersheen

AMERICA'S LARGEST MANUFACTURER OF ADVANCED BARREL FINISHING EQUIPMENT – MATERIALS AND COMPOUNDS

ALBERT LEA, MINNESOTA

DESPATCH OVEN TRIPLES SIGN PRODUCTION AT NAEGELE ADV. CO.

Despatch Water Wash Spray Booth cleans paint laden air "... removes vapor laden fumes ... eliminates most of labor and "down time" for cleaning.

Oven is 9′ wide by 17′6″ long by 9′ high. Convection air heated, recirculating type. Will accommodate 3 racks 8′x8′x30″.

Oven equipped with Premix gas burner and combustion air blower. Designed for maximum 450° F. Forced exhaust system. Rigid safety and temperaure controls.

The progressive Naegele Advertising Co., Minneapolis recently "at home" in greatly enlarged quarters, is creating and producing painted bulletins, highway and commercial units of all types faster than ever before. Production increases of 3 to 4 times were realized when, for finish baking, the company replaced infra-red light banks with a Despatch Finish Bake Oven of the double-end opening, batch type. Quality also is greatly improved because the oven produces a much harder paint finish. Operating at a controlled temperature of 250° F., the signs are baked for ½ hour on the prime coat and each succeeding color coat of enamel. Using lights, the drying time for similar work required 4 to 5 hours. Now 300 to 400, 3′ x 8′ bulletin panels are run per day while under previous methods only 80 per day were possible.

In conjunction with the oven, a Despatch Water Wash Spray Booth is employed. It measures 12′ wide, 8′ deep with 6′ added extension panels. Water curtain is operated by a 480 GPM circulating pump.

FINISHING PROBLEM? —*CALL DESPATCH*

Despatch Finishing Systems are designed and built to finish your product better, faster and more economically. You can get a complete system or individual units, such as: Bake Ovens, Dry-off Ovens, Spray Booths, Washers, Flow Coaters, Conveyors, Air Make-up Systems. Resident engineers located in your vicinity are ready to help you with your finishing problems. Write to Dept. E.

DESPATCH OVEN COMPANY

Minneapolis Office: 619 S. E. 8th St.
Chicago Office: 4554 N. Broadway
Sales and Service in All Principal Cities

ONE UNIT OR A COMPLETE FINISHING SYSTEM

250 amperes on continuous service, with higher ratings when loads are intermittent. Resistance changes range as high as 50 to 1.

Proportioned for moderate temperature rise, the rheostats operate at lower temperatures than the multiple tube or standard rheostats. Their cases are insulated and the rheostats are suitable for mounting on metal or insulating panels.

These rheostats are designed for use as part of an electrical circuit. For correct application, H-VW-M suggests furnishing, with inquiries, complete details as to exciting potential and other elements of the circuit.

Graphs illustrating typical applications and test results will be furnished.

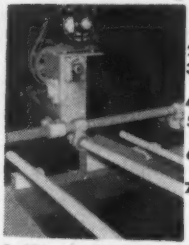
For further information, write to Hanson - Van Winkle - Munning Co., Matawan, N. J., or circle No. 7 on Reader Service Card inside back cover.

8 GOOD REASONS WHY

PLACO

TANK ROD AGITATOR

is the best you can buy!



1. Fully insulated with Bakelite arm
2. Insulated rollers
3. Ball bearing stainless steel shaft rollers
4. Ball bearing gear box
5. V-belt drive to change speed
6. Adjustable stroke up to 6"
7. Easily mounted; clamps on to tank — telescoping extended support
8. 110 volt AC plug in line and switch

$165 single rod **$185** double rod

METAL FINISHING MFG. CORP.

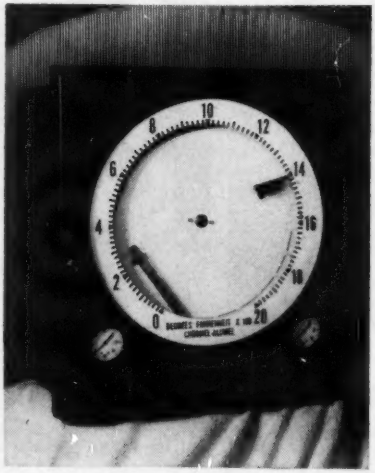
89 North 11th Street Brooklyn 11, N. Y.

ENGINEERING FINISHING EQUIPMENT for almost 20 years

SERVICING THE INDUSTRY FOR 35 YEARS

Recording Controller

A line of process instruments including potentiometric and a-c bridge recorders and recording controllers has been announced by the General Electric Company's Meter and Instrument Department.



Recording Controller

The instruments, designed for continuous measurement and control uninterrupted by periodic standardization, incorporate new measurement circuitry and components. Foremost among the new features are a magnetic standard in the potentiometric system and a bridge-balancing unit in the a-c bridge system.

Both models are available with either electric or pneumatic control, and are equipped with a unique centerless pointer that simplifies chart changing and leaves practically all of the chart exposed to view for easy reading.

Other advantages of the equipment include plug-in components, antibacklash gearing, internal illumination, and an integral pen-inkwell as-

Good Barrel Finishing Costs Less with The Abbott Method

It's a fact! The Abbott Method of Barrel Finishing reduces costs because it features long-lived Abbott Burnishing Shapes. Made of selected carbon steel — deep hardened — tempered and polished to a mirror-like glass hard finish, Abbott Shapes make efficient contact on all sizes and designs of stampings and castings. Abbott Burnishing Shapes last longer, burnish more parts and cost less in the long run. Used in Abbott Vertical Barrels they make an unbeatable barrel finishing combination!

For Proven Performance . . . use The ABBOTT METHOD.

Improved Abbott Barrel!

Write for details . . . today!

ABBOTT

THE ABBOTT BALL COMPANY
1064 New Britain Ave.
Hartford 10, Conn., U.S.A.

sembly designed for automatic realignment.

The reinforced steel case and die-cast aluminum cover are sealed with neoprene gasketing against dirt and moisture, and can be furnished for either wall or flush mounting.

Chart speeds are for 1, 4, 8, 12, and 24 hour, and 7 day cycles.

Bulletin GED-2100 available.

For further data circle No. 8 on Reader Service Card inside back cover.

Automatic Plating Barrel Conveyor

A fully automatic plating barrel conveyor of the return type using the standard Udylite horizontal barrel plating cylinder has been announced by The Udylite Corp., Detroit 11, Michigan.

Illustrated is a machine with 24 cylinders, 14 inches in diameter by 30 inches long inside dimensions, to produce 3,000 to 6,000 pounds of plated work per hour (the production necessarily determined by surface area per pound of work plated and thickness of deposit). This machine is laid out for the normal zinc plating cycle but machines are designed and built for any standard plating process.

This is a heavy duty, high production plating machine. The chassis is rigidly constructed, using a maximum fiber stress of 10,000 p.s.i. High quality materials are used throughout such as—Baldwin Duckworth roller chain, General Electric motors and plugging switches, Cleveland Worm Gear speed reducers, Morse Chain torque limiting clutches, Chrysler Oilite bushings and self-aligning bearings, Allen Bradley limit switches.

The machine is remarkably flexible because of timer controlled speed and power operated skip transfers. The r.p.m. of the cylinder can be changed. All cylinders are potentially capable of individual lowering or raising.

Standard Udylite plating barrel cylinders of Tempron or Acrylic Resin are offered with this machine. The cylinders revolve in a trough of anodes in the plating tank, the anodes are on both sides of the cylinders. Conforming anode containers keep the solution resistance low.

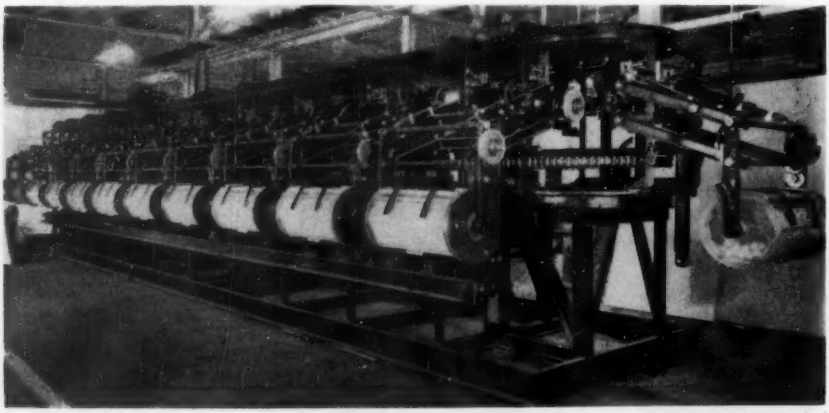


Fig. 1—Udylite Automatic Horizontal Barrel Machine.

FILTER OUT poor plating adhesion!

Don't let poor adhesion and stripped plate run up your reject rate and rob you of costly anode metal. You can filter trouble-making impurities out of plating baths with Red Label Darco S-51.

Start CLEAN... Stay CLEAN

. . . by filtering your plating solutions through Red Label Darco S-51. This highly efficient activated carbon, made especially for electroplaters, takes out harmful impurities quickly and economically; helps you get bright, adherent finishes every time.

Your nearby supplier stocks Red Label Darco S-51 in 10 and 50 pound cartons. Order a supply today, and use it regularly in your plating.

Write for a copy of the article, "Filter Out Your Plating Rejects."

DARCO DEPARTMENT
ATLAS POWDER COMPANY
Darco General Sales Offices
60 East 42nd Street, New York 17, N. Y.
Atlas Powder Company, Canada, Ltd., Brantford, Canada

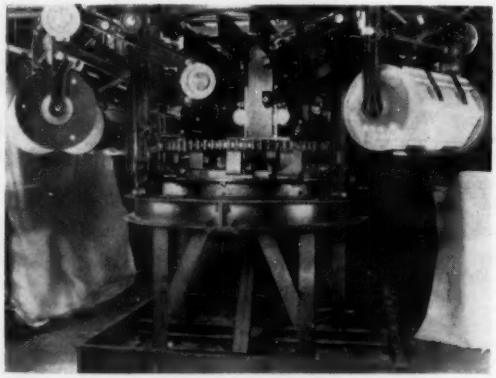


Fig. 2—End view of transferring position of Udylite Automatic Plating Barrel Conveyor.

The machine is engineered so that none of the operating mechanism is over the tanks except V-belt drives which will not rust. The cylinders rotate when raising and lowering thus greatly reducing dragout losses and solution contamination.

Separate chains are used for the conveyor and for the elevating mechanism. This means that the stress of elevating is not on the conveyor chain.

The machine is electrically and mechanically operated—it could be left in the up position indefinitely. This means that the cylinders may be left in the elevated position (over hot tanks) overnight or over a week-end.

The machine is accessible from the inside as well as the outside. The bottom of the tanks is about 18 inches above the floor.

In every way the machine has been engineered and built for convenience of operation.

A power operated hopper, with weighing scale, is used for loading the machine—to raise the hopper the operator simply pushes a button.

The plated work is dried after it is unloaded from the machine. This is conducive to efficiency because the work, not the barrel, is dried. The drying is done in the conventional drum type dryer, or centrifuge, or the machine is equipped with heated air operated chutes, electrically controlled.

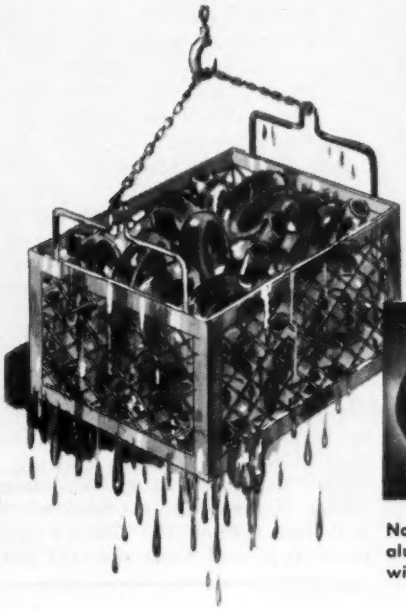
For further data circle No. 9 on Reader Service Card inside back cover.

Wet Blast Machine

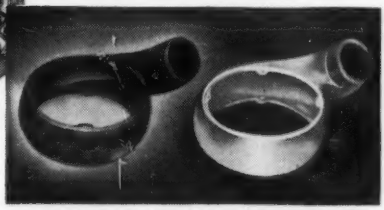
The addition of a low-cost model to its line of Pressure Blast wet-blast units has been announced by the Cro-Plate Company, Inc., 747-6 Windsor St., Hartford 5, Connecticut.

MASKING TAPE
DIE-CUT TO YOUR EXACT SPECIFICATIONS FROM
SCOTCH BRAND
INDIVIDUAL PIECES • ANY SIZE OR SHAPE
For quick, accurate masking operations.
PHONE OR WRITE PANOCO
166 HENRY STREET, STAMFORD, CONN.

UDYLITE SERVICE
DOESN'T COST—IT PAYS
These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.
TAKE SOLUTIONS FOR EXAMPLE:
We maintain a customer laboratory for the testing of your solutions. Our free services will save you money. Why not find out for yourself. Write to—
WORLD'S LARGEST PLATING SUPPLIER
THE Udylite CORPORATION
DETROIT 11, MICHIGAN



FOR A TROUBLE-PROOF FINISH--- START AT THE BOTTOM!



No buffing compound remains after this aluminum casting has been precleaned with a Magnus Emulsion Cleaner.

Removing buffing compounds or oily dirt films from metal surfaces is easily accomplished by precleaning with a Magnus Emulsion Cleaner. A simple dip or spray penetrates the grime, loosening it for easy removal with a water rinse.

Magnus Emulsion Cleaners are non-toxic, non-corrosive and have no unpleasant fumes. Cleaning is safe, dependable and economical.

A demonstration will open your eyes to the improvements in quality and the reduction in cleaning costs offered by Magnus Emulsion Cleaners. Write for information—no obligation, of course.

magnus

MAGNUS CHEMICAL CO., INC.
208 South Ave., Garwood, N. J.
In Canada: Magnus Chemicals, Ltd., Montreal
Service Representatives in Principal Cities

Known as the "Pressure Blast, Jr." this new concept in wet-blast equipment was designed for multi-unit installation in the larger plant, or the smaller shop where the compressed air supply for the operation of this type of equipment may be low. The Pressure Blast, Jr. may be operated in conjunction with a 3 h.p. compressor.

The Pressure Blast, Jr. features:

1. Motor-driven "paddle-type" agitator for the water and abrasive mix.
2. Self-supporting trigger gun to reduce operator fatigue.
3. Foot pedal window wash actuator.
4. Large, single front work loading door with open end armports.
5. Louvers for free air induction and better visibility.
6. Special standpipe for better solution maintenance.
7. Full stainless steel construction.
8. Lighting by means of a 150 watt explosion proof spotlight.
9. Heavy duty blower for exceptional visibility while operating.

The "Jr." operates on the "aspiration" principle which relies upon a venturi in the blast gun to raise the abrasive and water mix up from the hopper.

For further data circle No. 10 on Reader Service Card inside back cover.

Ion-Exchange Unit

Processing of metal finishing wastes for chromium and other metal recovery is possible with the Stevens-Dorrco d-i Cell Ion-Exchange Unit.

First exhibited at the 1953 National Metal Exposition in Cleveland this unit has become the feature equipment in several waste disposal instal-

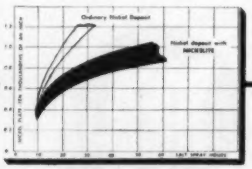
NICKELITE

cuts your barrel nickel brightening costs

Concentrated to quadruple-strength—you don't ship, store or handle water. Shipped in quart bottles, four to a carton—shipping weight is cut 275%. No container deposits—no carboys to return. One capfull of concentrate is enough for a barrel load of bright nickel. Stable at high solution temperatures, you turn out a better, brighter plate in a shorter time. Not filtered out in normal processing—your replenishments are kept low.

for greater corrosion resistance

Nickelite boosts corrosion resistance of barrel plated steel 50 to 100% by standard salt fog tests. With 0.00006 inch of ordinary nickel deposit you can expect 11 to 15 hours of salt spray before corrosion—Nickelite will give you 13 to 22 hours. Thicker deposits show even greater improvement.

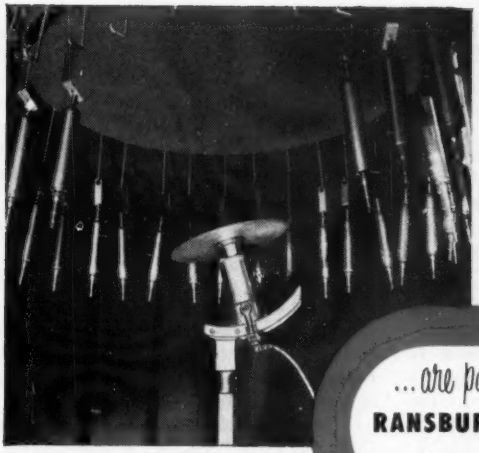


Platers Research CORPORATION

59 EAST 4TH ST.—NEW YORK 3, N. Y.

A barrel load of bright nickel . . .

WITH A NICKEL'S WORTH OF NICKELITE



Shock Absorbers

...are painted with the
RANSBURG NO. 2 PROCESS
using disc-type atomizer

A leader in the field, The Gabriel Company, Cleveland, uses the Ransburg No. 2 Process to apply the protective coating to its line of shock absorbers which vary in size from 4" to 26" in length.

● Efficiency and production in the finishing of shock absorbers progressively improved at The Gabriel Company, when—over a period of years—they went from dip to Ransburg No. 1 Process, then to the Ransburg No. 2 Process, with the disc-type atomizer.

Efficiency was stepped up measurably when the No. 1 Process of electrostatic spray painting replaced dip method in the application of the protective coating to the completely-assembled shocks.

NOW, with the even-more-efficient No. 2 Process—with disc-type atomizer—Gabriel is painting 1000 pieces per gallon of paint where they formerly finished 350! Production is up, too—almost doubled—jumping from 1000 to nearly 2000 units per hour. In addition to paint savings, they are getting a consistent, high quality finish and an even, protective coating over all areas of the product.

This is another on-the-job example of what Ransburg No. 2 Process is doing on production lines all over the country. We'd like to talk to you about the possible savings in your finishing department. Or, write for our brochure on Ransburg Electrostatic Painting Processes.

Ransburg **ELECTRO-COATING CORP.**
Indianapolis 7, Indiana

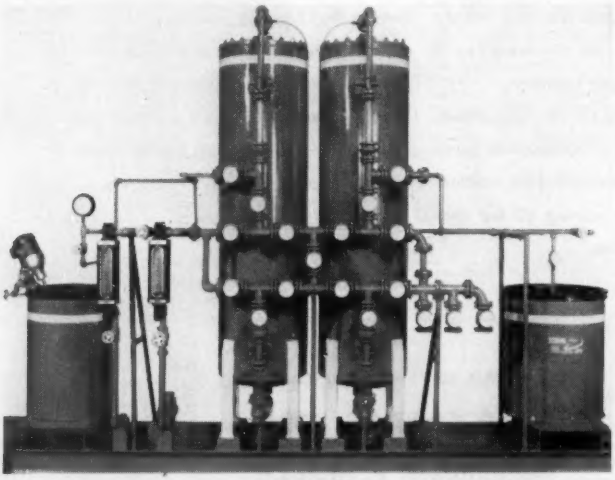
RANSBURG

lations since engineered by Frederic B. Stevens, Inc., Detroit 16, Michigan.

Today the use of ion exchangers in metal finishing for recovery as a phase of waste treatment operations is an accepted industry technique. Many instances are recorded where reclaimed materials recovered from plating room waste water have more than borne the cost of the installation and upkeep of the ion exchange system.

Although ion exchange is not the only method available for metal finishing waste treatment it is helping to meet the public and the government's challenge to the metal finishing industry in correcting pollution and needless waste of water.

More information on the Stevens-Dorr Ion-Exchange unit and the complete waste disposal engineering and installation services available for the metal finishing industry can be obtained in the Stevens Technical Bulletins P-112, *"Stevens Ion-Exchange Waste Disposal and Recovery System for Plating Industries,"* P-114, *"Watch Your Waste Line!"* P-115, *"Methods of Treating Plating Room Wastes,"* and P-117, *"Stevens Technical Services for Handling Plating Room Wastes."* These are available at local Stevens offices or from Frederic B. Stevens, Inc., 1800 18th St., Detroit 16, Michigan.



Stevens-Dorrco d-i Cell Ion-Exchange Unit

Filter Unit

After several years of successful testing in the field, the Placo Self-Priming and Self-Relieving Filter Unit is now ready for national distribution by Metal Finishing Manufacturing Corp. of Brooklyn, N. Y.

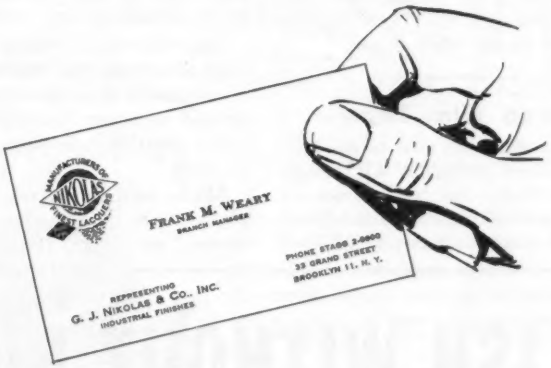
Constructed of type 316 stainless steel, the unit is ideal for filtering all acid and alkaline solutions. Long life neoprene impeller, large graphite bearings and ball bearing ring enclosed motors assure convenient, trouble-free operation. The Placo filters in depth, through cartridges of cotton, Dynel and carbon, making possible microscopic clarification, including removal of colloidal solids, it is claimed.

The manufacturer states that no priming is necessary to operate the Placo filter; a flick of the switch starts crystal-clear filtration at full pressure. When the filter is loaded with impurities, the flow rate is automati-

NIKOLAS

SINCE 1890

Your Introduction to FINE FINISHES



For over a Half Century our representatives have shown that Quality finishes can produce lower finishing cost, by greater coverage.

We welcome your inquiry and the opportunity to demonstrate.

FOR INFORMATION, SAMPLES AND RECOMMENDATIONS

WRITE — WIRE — OR CALL

G. J. NIKOLAS & CO., INC.

2880 WASHINGTON BLVD., BELLWOOD, Ill. • 33 GRAND ST., BROOKLYN 11, N. Y.

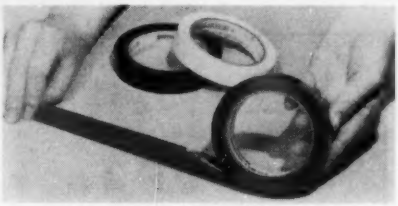
cally reduced to a trickle to warn that the cartridge needs cleaning or replacement.

Economical, Placo filter units are available with capacities from 60 to 1600 gallons per minute. Also in steel or rubber-lined models, with Worthite pumps.

Additional information on standard and special filter units, as well as a full line of plating equipment, can be obtained from Metal Finishing Mfg. Corp., 89 N. 11th St., Brooklyn 11, N. Y., or by circling No. 12 on Reader Service Card inside back cover.

Colored Film Tape

A pressure-sensitive film tape—possessing excellent strength although only 2 mils thick—has been announced for widespread industrial marking, labeling and decorating use by Minnesota Mining and Manufacturing Co., St. Paul, Minn.



Scotch brand colored film tape No. 850

The new tape—"Scotch" brand colored film tape No. 850—is made with a polyester film backing that is described as being "superior to most existing plastics in heat and chemical resistance."

Made with red, black or white color pigments in its adhesive, the tape possesses "excellent" resistance to acids,

★

POLISH WITHOUT BUFFS

IN YOUR OWN PLANT WITH

ELECTRO-GLO ELECTROPOLISHING CONCENTRATES

SATIN TO MIRROR BRIGHT FINISHES ON COPPER AND ALLOYS, CARBON AND STAINLESS STEELS, ECONOMICALLY!

Electro-Glo electro-polishing concentrates mean savings to you in Time, Labor and Production Costs. Brightens, smooths and deburrs in one simple operation.

Copper Alloys.....ELECTRO-GLO #200
Austenitic Stainless Steel ELECTRO-GLO #300
Martensitic Stainless Steel ELECTRO-GLO #400
Carbon Steel..... FERRO-GLO #500

WRITE FOR DETAILS AND NEAREST DISTRIBUTOR

Electro-Glo COMPANY
1430 S. TALMAN AVE.
CHICAGO 8, ILLINOIS

Is Your Dryer A BUCKING BRONCO?

In order for a centrifugal dryer to stay put it should be heavy. That's why the modern Nobles Dryer is about twice the weight of most dryers. Extra weight is one of the reasons for its stability, its freedom from vibration, its smooth operation, and long trouble-free life.

It's all new in design and principle. A powerful suction fan *draws* the air completely through this modern Nobles Dryer and exhausts it at the bottom! Electric or steam heaters are mounted in the cover of this machine of advanced design for a saving of space and elimination of heat loss.

Air moving equipment isn't an extra. The powerful suction fan is an integral design feature of each machine. A brake pedal extending around the entire work area controls an internal, expanding hydraulic brake for quick, smooth stops.

Why not take the first step now toward modern quick drying and lowest costs?

NOBLES ENGINEERING & MANUFACTURING CO.

431 EAST SEVENTH STREET ST. PAUL 6, MINNESOTA

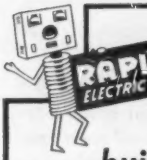
Write Today for the FREE NOBLES DRYER BROCHURE

alkalies, ketones, hydrocarbons, esters, and other common solvents, as well as excellent resistance to all sorts of weather conditions.

Because the new tape will not crack, chip, or peel, it is expected to find widespread use by toy, home appliance, sporting equipment, power tool, and various other manufacturers for marking, labeling, and decorating their products.

In addition, fleet operators, railroads, and airlines may find them ideal for decorative "color" striping and emblems on their equipment; electroplaters for readily discernible stop-off masking jobs; metal fabricators for striping tasks; and for general industry use where a color substitute can be adapted.

Sample ¾-inch by 5-yard rolls are available on request from the 3M company, 900 Fauquier Street, St. Paul 6, Minnesota.



SELENIUM RECTIFIERS

. . . built to your Specifications.

INDUSTRIAL AND LABORATORY USE.

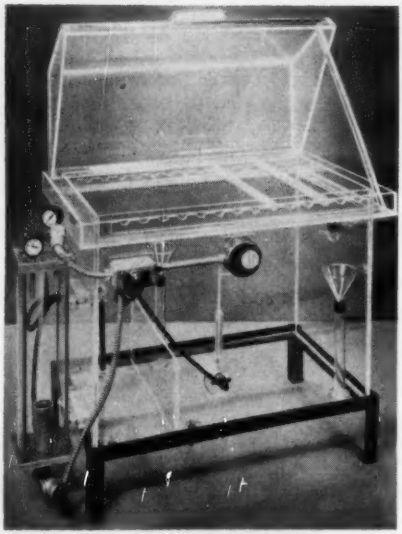
- ELECTROPLATING
- ANODIZING
- PERIODIC REVERSERS
- CONTROLS

CATALOG AVAILABLE ON REQUEST.

RAPID ELECTRIC CO.
2877 MIDDLETOWN ROAD, N. Y. 61, N. Y.

Salt Spray Test Cabinet

The Singleton "H-T Sincolite" Salt Spray Test Cabinet introduced by The G. S. Equipment Co., 5317 St. Clair Ave., Cleveland 3, Ohio, is completely transparent, affording clear visibility



Singleton Salt Spray Test Cabinet

for observing and controlling progress of tests, making it possible to examine specimens without opening the lid.

Fusion-welded construction provides permanent no-leak seams. All gauges and other metal parts are on the outside. "H-T Sincolite," the material from which the cabinet is constructed, is non-porous, inert to test solutions, and prevents secondary galvanic acceleration of corrosion. According to the manufacturer, proper regulated temperature in the cabinet is assured as well as elimination of deterioration and maintenance. For further data circle No. 14 on Reader Service Card inside back cover.

GENERAL serves the screen process industry in all its phases. From precision-built production printing presses and equipment through supplies and ink for completely successful operation of any size screen process plant, you can always rely on General to supply the highest quality material at the lowest cost.

More than 25 years experience in the development and manufacture of screen process equipment and supplies stands behind the General trademark.

PRESSES . . . *General Cylinder Presses* for high production, top quality screen process printing. Five models, from 13x20″, speed 3000, to 35x45″, speed 1800. *The Decorator Press*—designed for screen process printing on metal, glass, wallboard and other rigid sheet materials.

EQUIPMENT . . . *Seri-Chase*, the efficient precision built stencil frame. The *Convectaire Dryer* dries up to 3000 sheets per hour in 18 foot length. *M&W Wicket Dryer*, sturdy and well engineered. General also handles *automatic feeders, step and repeat machines, printing frames*, etc.

SUPPLIES . . . Silk—1st grade taffeta, all meshes and widths. Stencil Film—knife-cut, regular carbon tissue, autotype carbon tissue (green or red). Blockout Material—dopes, lacquers, etc.

INKS . . . Decalcomania Lacquers; Synthetic & Baking Enamels; Ethyl Cellulose Poster Colors; Vinyl, Acetate & Foil Colors; Solvents and Thinners; Screen Process Adhesives.

GENERAL RESEARCH & SUPPLY COMPANY

572 SOUTH DIVISION AVENUE • GRAND RAPIDS, MICHIGAN

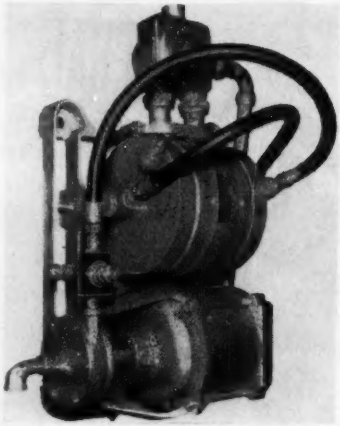
All Electric Hot Spray Heater

Standard industrial finishes can be expected to give more mileage, and better coverage when they are used with the new all-electric Circaflo 600 Hot Spray Heater announced by the Spee-Flo Company, 720 Polk Ave., Houston, Texas.

The unit combines the proved experience of a coilless heat exchanger with the "paddle wheel" simplicity of an electric powered centrifugal pump designed to handle all types of industrial finishes, regardless of their abrasive content, and requiring little or no maintenance.

The manufacturer states that Circaflo 600 circulates and heats the paint, maintaining a uniform temperature and constant fluid pressure at the spray gun. Air pressure variations do not affect fluid pressure in this all-electric unit. Installation is as simple as connecting a hoseline, and full heat is reached in four minutes.

Product manufacturers and maintenance painting departments have long appreciated the desirability of higher-solids, one coat application. Circaflo 600 reduces "overspray" and provides marked material savings as a result of lower atomizing pressure, reduced by heat. The controlled delivery temperature in the hot spray range produces rapid solvent evaporation at the gun head, and permits deposit of a high-solids film.



Circaflo Model 600A-P Hot Spray Heater

The principle of heated application of paint is not new, but the development of a complete automatic pressure and temperature controlled hot-spray heater that is simple and maintenance-free is now offered. Available as a fixed or mobile unit for industrial booth installation or plant maintenance, this unit is now in standard production by the Spee-Flo Company.

For further data circle No. 15 on Reader Service Card inside back cover.

UDYLITE SERVICE
DOESN'T COST—IT PAYS

These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.

DO YOU HAVE A DIFFICULT PART TO PLATE?

Take your problems to Udylite. We have a pilot plant where we will check your plating problem and make recommendations. It will save you from future costly mistakes. This service is free! Write to—

WORLD'S LARGEST PLATING SUPPLIER

THE Udylite CORPORATION DETROIT 11, MICHIGAN

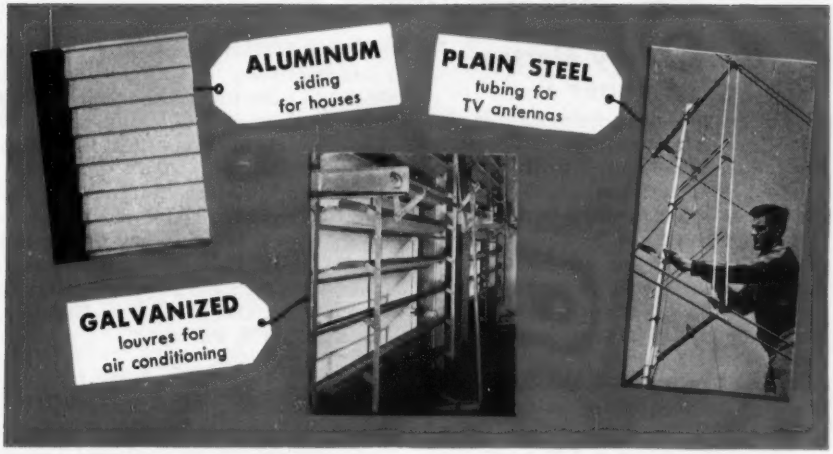
McKeon's "Liquid Sulphur"

Economical, satisfactory for

STRIPPING COPPER
and
OXIDIZING COPPER AND SILVER

Literature on request

Sulphur Products Co., Inc.
228 McKEON WAY GREENSBURG 6, PA.



Vinsynite precoats ANY METAL faster, better, at low cost

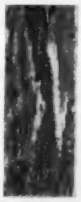
Regardless of the metal *or metals* in your product, Vinsynite can be the means of up-grading both appearance and durability of final finish. Used as an undercoat, this thoroughly-tested product deposits *in one application* a phosphate coating and a thin organic film. Thus in a single, cost-saving operation it achieves both corrosion-resistance and excellent adhesion for topcoats of paint.

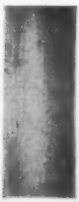
Vinsynite is applied simply and economically by spray, dip or roller. Its use requires no rigid controls, no expensive special equipment, no costly changeovers. Because it is effective on *any* metal, you'll need only one application line even if your production involves *more* than one metal.

Hundreds of metal-products manufacturers are now using Vinsynite. If you want to find out — quickly — about the advantages it can hold for you, write today for complete descriptive literature.

TEST PANELS PROVE CORROSION RESISTANCE

Unretouched photos show test panels exposed simultaneously to 500 hours ASTM salt-spray test. Corroded panel at left was finished with oleo-resinous paint over bare steel. Other panel was first coated with Vinsynite, then finished with same oleo-resinous paint. Note its freedom from corrosion.





SPECIALTY COATINGS, INC.
Division of Thompson and Company
1010 Allegheny Ave., Oakmont, Pa.

Vinsynite
CHEMICALLY BONDS FINISH TO METAL

Heavy Duty Electrocleaner

The Pennsylvania Salt Manufacturing Company, producer of chemical specialties widely used in the electroplating industry has announced a heavy duty electrocleaner known as Pennsalt Cleaner K-8.

Recommended for use on steel and copper, K-8 is said to provide excellent detergency properties with unusual ability to remove mill oil and smut from steel prior to electroplating. This is accomplished through a new concept in the use of surface active agents.

Pennsalt Cleaner K-8 is a granular, anhydrous product containing 100 per cent active ingredients which resist neutralization by acid soils and provide excellent electrical conductivity. K-8 is resistant to the effects of hard water and is free rinsing, it is claimed.

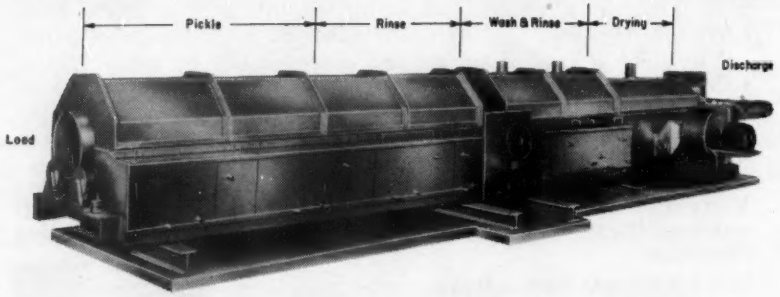
Recommended for use at 4 to 12 oz. /gal. at 210 deg. F. with 75-100 amp./ sq. ft. to take full advantage of K-8's high conductivity. Cleaning time will vary from ½ to 2 minutes depending on the application.

Detailed product information including recommended cycle and control data will be furnished on request by the Metal Processing Department, Pennsylvania Salt Manufacturing Company, 1000 Widener Building, Philadelphia 7, Pa.

Tripoli Buffing Compound

Learok Tripoli TP42X is a new, fast cutting, clean working Tripoli composition for buffing all non-ferrous metals. This composition is formulated to give extra bar strength for automatic buffing with mechanical applicators. Operating economies are effected through work per bar due to

Cleaning • Pickling • Washing • Drying



We build metal cleaning equipment—either as individual units or in continuous automatic installations of all types to meet your production specifications. What's your problem?

ROCKWELL SINCE 1888 BUILT

W. S. ROCKWELL COMPANY

FURNACES • OVENS • BURNERS • VALVES • SPECIAL MACHINERY

2904 ELIOT STREET • FAIRFIELD, CONN.

Sales Representatives in Principal Cities

"BUCKY" says...

BUCKINGHAM POLISHING and BUFFING COMPOSITIONS

- Stainless Steel Composition
- White Finish
- Tripoli
- Chrome Coloring Composition
- Greaseless Composition
- Emery Cake
- Brass Coloring
- Emery Paste
- Burring Compound
- Grease Stick
- Spray Pastes Stainless Steel Tripoli

Representation in Major Cities *Write Dept. C for Samples*

The BUCKINGHAM PRODUCTS Co.

14100 FULLERTON AVE. • DETROIT 27, MICH.

Hammond Model K-62-7 Rotary Automatic Indexing Polishing and Buffing Machine

new formulation of the compound, it is claimed. Strength of bar is not affected by elevated temperatures commonly met with in summer months. Bar sizes manufactured to specifications in widths of 2 inches or more and any length or shape. Samples available on request to the Lea Manufacturing Company, 16 Cherry Avenue, Waterbury 20, Conn.

Automatic Finishing Machine

Identified as the Model K-62-7, a rotary automatic indexing polishing and buffing machine which is designed to accommodate up to six head and stand units, and which features an indexing turret that measures 62 inches o.d. x 42 inches high from the floor to the top of the spindles has been announced by Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich. The machine operates on a constant high speed index movement of one second, has an adjustable dwell period and has an operating range of from 150 to 1,700 indexes per hour. The table is locked in each indexed position by a tapered lock bolt that engages the table. The lock bolt is pulled from the table prior to indexing by a cam on a Geneva lever shaft.

Table work spindles are driven by a ¾-h.p. motor at variable speeds of from 15 to 45 r.p.m. or from 50 to 150 r.p.m. The spindles operate independently of the indexing operation on the machine. The table is equipped with

UDYLITE SERVICE
DOESN'T COST—IT PAYS

These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.

IS YOUR ELECTRICAL SYSTEM EFFICIENT?

We have recommended new equipment to many manufacturers that has paid for itself in a matter of months. Why not let us check your power set-up? Write to—

WORLD'S LARGEST PLATING SUPPLIER

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

SOLVENTS and THINNERS RECOVERED

from wash thinners, spoiled lacquers, degreasing machine sludge, etc.

Solvents recovered by the Lofgren Process. Each customer's shipment, whether one drum or a carload, receives proper and separate treatment. Write to:

Solvents Recovery Service, Inc.
1025 Broad St. Newark 2, New Jersey
Hammond Solvents Recovery Service
241 Brunswick Rd. Hammond, Ind.

....before Northwest developed Acid Solvent Emulsion Cleaner #1."

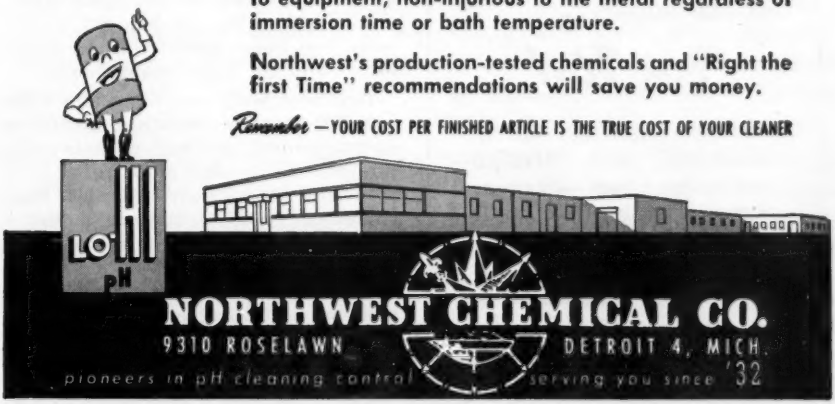
Got a Problem? **Let our "Cleaning Specialists" help you!**

Northwest's Acid Solvent Emulsion Cleaner No. 1 completely and quickly removes soil from aluminum parts, preparing the surface for plating, painting, anodizing, zinc chromate priming or other finishes.

It is fast cleaning, easily rinsed and controlled, readily-emulsified, and economical. Non-toxic, non-corrosive to equipment; non-injurious to the metal regardless of immersion time or bath temperature.

Northwest's production-tested chemicals and "Right the first Time" recommendations will save you money.

Remember —YOUR COST PER FINISHED ARTICLE IS THE TRUE COST OF YOUR CLEANER



seven work spindles, six of which support and rotate the work at the wheel station and the seventh is at the operator's station in front of the machine for loading and unloading. To assist the operator, the spindle at the operator's station does not revolve, but is stopped and held by a spring tensioned brake. This brake also serves to start rotation of the spindle as it is indexed into the moving table chain, thereby reducing wear.

For further data circle No. 17 on Reader Service Card inside back cover.

Selenium Plating Rectifier

The Kocour Selenium Rectifier is designed to meet every DC plating power supply requirement. It is conservatively rated with up to 11 per cent more scientifically matched, selenium stack area to ensure continuous performance under full load operation. The heavy-duty liberally designed transformers are multiple coated to resist corrosive atmospheres and humidity. The unit is fan cooled, utilizing a ball bearing polyphase pregreased motor.

Kocour Selenium Plating Rectifier

Stainless steel bi-metallic type thermal relays protect from fan failure or ventilation restriction. Bus bar is extended from both sides of the cabinet to provide busing to load from either side. Line voltage is reduced to 115 volts for improvement of insulation factor and for safer maintenance.

Rectifiers with current ratings from 5 to 200 amperes, including a variable output control, and with outputs ranging from 250 to 5000 amperes, at from 6 volts to 18 volts are available. Self-contained rectifiers include ammeter and voltmeter accurate to within 2 per cent of full scale, a 22-step variable output control over half or full range, built-in electromagnetic starter, all completely housed in one cabinet. Remotely controlled rectifier is a combination of a basic unit or units, with

FUNCTIONAL FINISHES!!

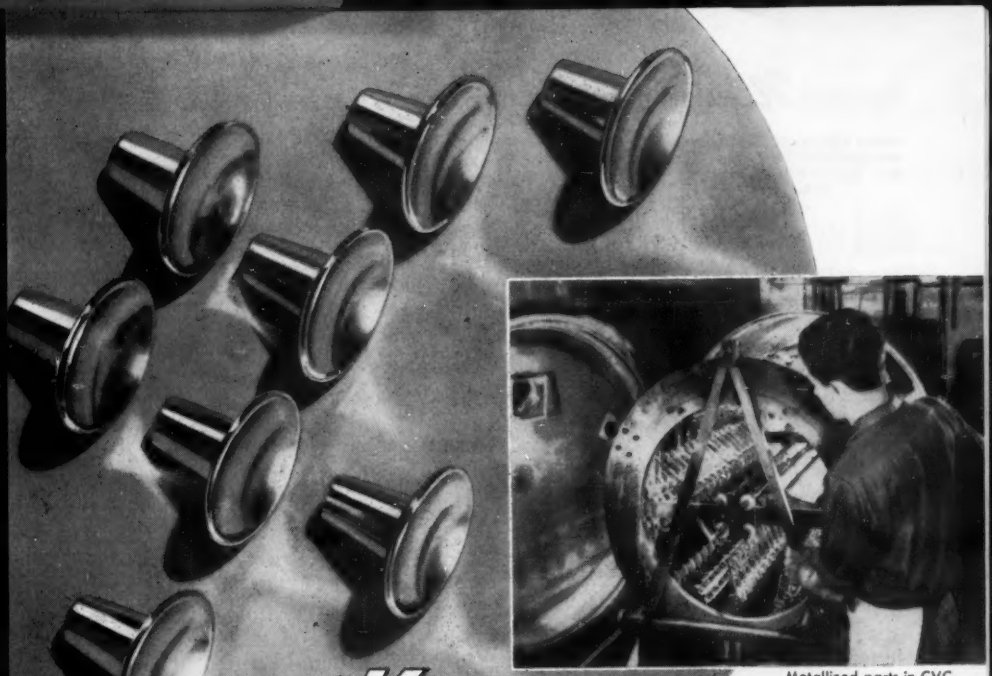
If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity —

Try Us!

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

The Varnish Products Co.

5204 Harvard Avenue
Cleveland, Ohio



Metallized parts in CVC high vacuum coater

CVC vacuum metallizing puts a shine on hardware without buffing or polishing

These drawer knobs are brighter than this picture can possibly show because they are *vacuum metallized*.

This relatively new process of evaporating metal at reduced pressure produces a mirror-like finish without buffing or polishing. It is economical—only a small amount of aluminum will coat thousands of pieces. It works just as well on inexpensive die castings as on the most expensive items.

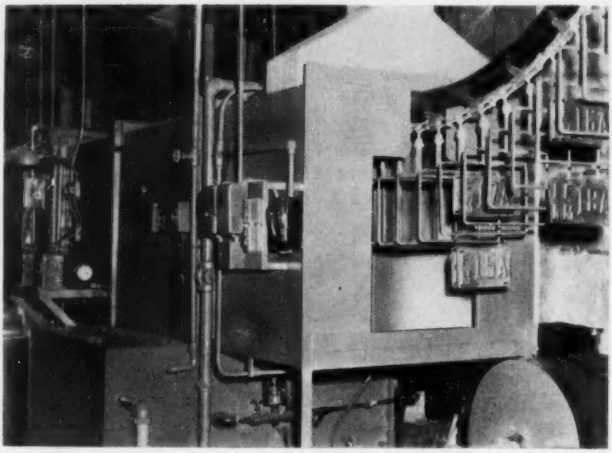
If you have a metal piece now finished by a conventional method, let us demonstrate (without cost to you) what vacuum metallizing can do for your product. Send your metal samples to ***Consolidated Vacuum Corporation, Rochester 3, N. Y.*** (a subsidiary of Consolidated Engineering Corporation, Pasadena, California).

CVC **Consolidated Vacuum Corporation**

ROCHESTER 3, N.Y.

Headquarters for High Vacuum

sales offices: NEW YORK, N. Y. • CHICAGO, ILL. • BOSTON, MASS. • SAN FRANCISCO, CALIF. • CAMDEN, N. J.



Model OM 24x30 (WBD) conveyorized cleaning and phosphatizing machine

separately housed remote controls. Anodizing rectifiers are available with outputs of 18, 24, 36, and 48 volts.

All of the Kocour Selenium Plating Rectifiers are housed in an industrial duty, heavy gauge steel cabinet, completely electro-welded, chrome primed and finished to resist corrosion and humidity. For descriptive literature write to Kocour Company, 4814 S. St. Louis Ave., Chicago 32, Ill., or circle No. 18 on Card inside back cover.

Cleaning and Phosphatizing Machine

A machine that finishes automobile license plates has been designed, built and installed in New Jersey State Prison at Trenton by the Industrial Washing Machine Corporation of Matawan, N. J. Designated Model OM 24 by 30 (WBD), the machine processes 1,200 sets of plates per hour.

The steel plates are fed to the machine after stamping, for coating and preparation for painting. The machine washes, rinses, phosphatizes, cold rinses, applies a chromic rinse and dries. All this is accomplished within a space 60 by 7 by 10 feet high.

For further data circle No. 19 on Reader Service Card inside back cover.

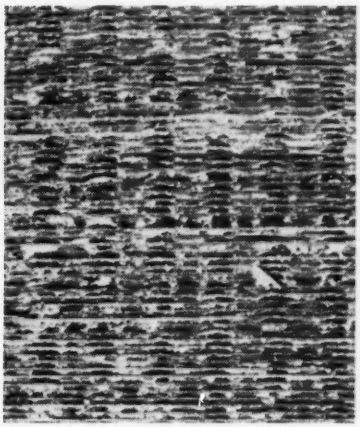
Pulp Colors

A new line of "Stir-In" pulp colors recommended for use in latex emul-

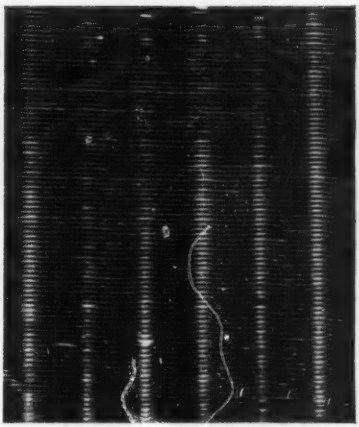
CORROSION-PROOF LININGS CEMENTS BRICK
• TANKS, FLOORS, FUME DUCTS AND PROCESS EQUIPMENT
• COMPLETE LINE OF PROTECTIVE COATINGS . .
Over a Quarter Century of Experience
CEILCOTE CORROSION-PROOF MATERIALS • CONSTRUCTION • SUPERVISION
The CEILCOTE Co. 4848 Ridge Rd. Cleveland 9, Ohio

UDYLITE SERVICE DOESN'T COST—IT PAYS
These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.
LOOKING INTO THE FUTURE?
The Udylite Research Corporation was founded to plan for tomorrow. We can help you with your five-year or ten-year program. It costs you nothing to find out. Write to—
WORLD'S LARGEST PLATING SUPPLIER
THE Udylite CORPORATION DETROIT 11 MICHIGAN

1150-hour salt spray test shows increased corrosion resistance with Bonderite on aluminum



UNTREATED. *Unretouched photo of section of aluminum refrigeration air conditioner condenser after 1150 hours in salt spray. Note corrosion.*



BONDERITE-TREATED. *Unretouched photo of identical aluminum refrigeration air conditioner condenser after 1150 hours in salt spray. Note absence of corrosion.*

If you want more effective bare corrosion resistance or increased durability for paint, treat aluminum and its alloys with Bonderite.

Special formula Bonderites have been developed and tested and proven thoroughly for this purpose. They form a thin, irridescent, remarkably effective integral coating with the aluminum in simple and economical operation. Solutions are sludgeless, easily controlled, and produce results of uniform high quality.

The Bonderite coating is flexible, withstanding moderate draws without trouble. The coating conducts electricity, necessitating no change in arc and spot welding procedures. Bimetallic and galvanic corrosion resistance is high.

Bonderite for aluminum is shipped in concencentrated liquid form, easy and safe to handle and use.

Get complete information on this more effective protection for aluminum and its alloys. Write for bulletin on Bonderite 710 and 720.

**Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.*

Since 1915—Leader in the Field

PROTECTED BY Bonderite QUALITY CORROSION RESISTANT

PARKER RUST PROOF COMPANY

2172 E. Milwaukee, Detroit 11, Michigan

BONDERITE	BONDERITE and BONDERLUBE	PARCO COMPOUND	PARCO LUBRITE	TROPICAL
corrosion resistant paint base	aids in cold forming of metals	rust resistant	wear resistant for friction surfaces	heavy duty maintenance paints since 1883

sion paints of all types is being offered by the Pigment, Color and Chemical Division of the Sherwin-Williams Co.

These pulp colors are homogenous mixtures of pigment and water which will not settle out during normal storage. They are designed for cases where it is desired to save the cost of grinding the pigment or grinding facilities are not available. They are recommended for pigmentation of all types of emulsion finishes, and have been used with butadiene-styrene, polystyrene, acrylic and polyvinyl acetate polymers.

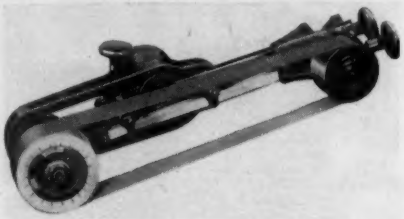
The line includes three types of Hansa Yellow (10G, G and M shades), Toluidine Red, Naphthol Red Light, Alizarine Red, Pigment Green B and Phthalocyanine Blue.

Samples of the "Stir-In" pulps and information on their use are available from the Pigment, Color and Chemical Division of The Sherwin-Williams Company, 100 Park Avenue, New York 17, N. Y., or 300 W. Lake Street, Chicago 6, Illinois.

Protect spray booths with
BOOTHCOTE
the finest product made!
SAFER
NON-INFLAMMABLE, NON-TOXIC.
DRY-OR-WET
Boothcote No. 4 for dry wall booths
(just peel off overspray)
Boothcote No. 5 for water wash walls
SAVES
TIME, LABOR, MONEY!
In 55 gal. drums..... 80¢ gal.
In 15 gal. drums.....$1.00 gal.
In 5 gal. pails.....$1.25 gal.
F.O.B. Buffalo, N. Y.
Inquiries Invited—Samples On Request
HYGRADE Food Products Corp.
Industrial Division
18 Stetson St., Buffalo 6, N. Y.

Contact Wheel Belt Grinder

Model 500 Contact Wheel Belt Grinder, built by B & E Manufacturing Company, Inc., 407 Liberty Street, Kansas City, Missouri, is stated to offer flexibility and maneuverability. It can be mounted on a bench, pillar, portable table or most any convenient place in the shop. An adjustment of 360 degrees vertically is possible.



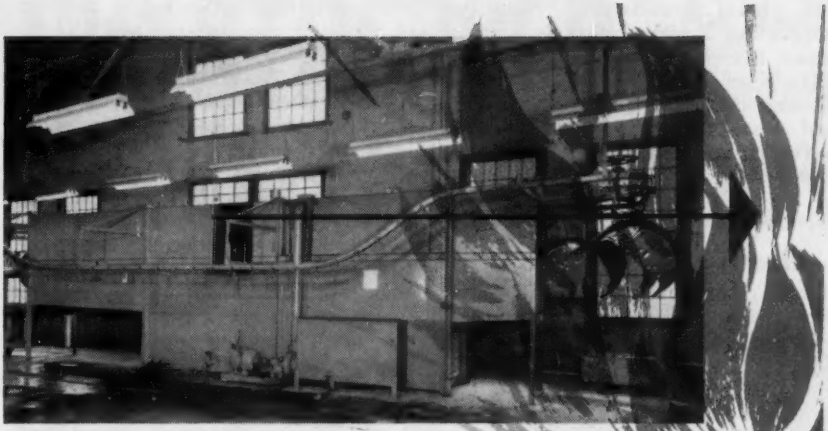
Model 500 Contact Wheel Belt Grinder

Model 500 Belt Grinder is claimed to speed up production on deburring, chamfering, removing flash, fins, parting lines, and so on.

For further data circle No. 20 on Reader Service Card inside back cover.

Industrial Wipers

The Kimberly-Clark Corp., Neenah, Wis., has developed a line of disposable industrial wipers specifically designed for a number of cleaning or wiping applications in manufacturing processes. "Kimwipes 1300," a general purpose wiper, can be used for cleaning scientific glassware, light machinery, metal parts in process, painted, enameled, and varnished surfaces,



taking the HEAT out of power washing

...this manufacturer saved $2550 by using Houghton

COLD CLEANERS

An auto parts manufacturer who needed additional cleaning facilities, learned there was a new "cold" cleaner which would do a good job of removing drawing compound from steel parts in a power washer. He called the Houghton Man and a test was set up.

Washed cold, with Houghto-Clean added to water, the parts came out clean. No heat needed! No steamy cleaning room! No discomfort for workers!

But—just as important—they were able to eliminate the need for $1900 worth of stacks, fans, pipe and fittings, plus $650 in burner equipment. And are saving an additional $25.85 daily in fuel!

Get the whole story on "cold" Houghto-Clean for room temperature, production-line power washing. E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Pa.

HOUGHTO-CLEAN
room-temperature metal cleaner

...a product of

E. F. HOUGHTON & CO.
PHILADELPHIA · CHICAGO · DETROIT · SAN FRANCISCO

Ready to give you on-the-job service . . .

and plastic products. "Kimwipes 900-S" are designed for cleaning of lenses, microscope slides, and goggles. "Kimwipes 900-L" can be used for general cleaning, inspection wiping, and cleaning of delicate equipment.

For further data circle No. 21 on Reader Service Card inside back cover.

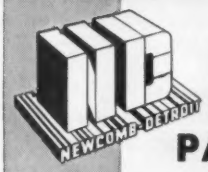
Flex-Tube Manometer

A manometer to measure air pressures above and below atmospheric, pressure differentials, and (with pitot tube) air velocities has been developed by F. W. Dwyer Mfg. Co., 317 S. Western Ave., Chicago 12, Ill. Designated the Dwyer Flex-Tube Manometer Series 25, the instrument is designed to gage static pressure, draft, velocity and filter resistance. The manufacturer points out that the simple construction of the manometer and the ease of installation assure the user of minimum maintenance and lifetime accuracy.

The Flex-Tube Manometer can be used in ovens, furnaces, and paint spray booths. A recent bulletin issued by the National Board of Fire Underwriters, 85 John St., New York 18, N. Y., "Amendments to the September, 1953 standards of the National Board of Fire Underwriters for Spray Finishing Using Flammable Materials," contains the following directive under Section 305, Paragraph A: "The spraying operations shall be so designed, installed and maintained that the average air velocity over the open face of the booth (or booth cross-section during spraying operations) shall be not less than 100 linear feet per minute. Visible gauges or audible alarm devices shall be installed to indicate that the required air velocity is maintained."

NEWCOMB-DETROIT

PIONEERS IN ENGINEERING, MANUFACTURE AND INSTALLATION OF



INDUSTRIAL OVENS
SPRAY BOOTHS
PARTS WASHERS
DUST COLLECTORS
AIR SYSTEMS

ESTABLISHED 1912
DETROIT DIVISION – GRAND RAPIDS DIVISION –
NEWCOMB INDUSTRIES LTD., WINDSOR DIVISION

For Bulletins and Quotations, Wire, Write or Call—
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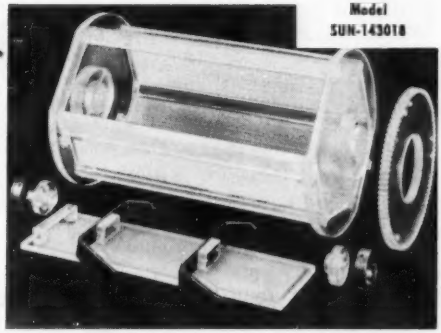
TR 3-2100

DIS-STRESSED* Plating Cylinders FOR SALE.. ALL MAKES



Avoid Distress with Singleton "H-T Sincolite" Dis-Stressed Cylinders

Here's inside dope on internal stresses.

The "Flat" Shape Stays

"Plexiglas has a peculiar property called *'elastic' or 'plastic' memory"*, says Rohm & Haas Bulletin 4b, "If a flat sheet is bent . . . when heated, it will retain the new shape as long as it is kept *below 180° F.!* Dupont says, "Lucite has the property of *'elastic memory'*, when a formed piece is heated beyond the softening point . . . the plastic tends to *return to the shape it was initially cast*".

No Dangerous Curves

Don't gamble on "formed shapes"! Tough, rugged Singleton "H-T Sincolite" Cylinders are *fusion-welded, heavy-ribbed, flat panel construction throughout.* They set the "pattern" for the industry—recently adopted by one of the largest makers. *Not bent or formed in any way*—so not limited in high temperature applications as are formed cylinders.

Engineered..."Opinioneered"

Good *engineering* wasn't enough. These cylinders have been *"opinioneered"* by some of the best platers in the world (and some of the worst). Nearly *everybody* got into the act, so these cylinders have got *everything.* They're the *only* cylinders platers swear *by*—not *at!* There's a model to fit any make superstructure.

Be a "Professional Opinioneer"!

Let us hear from you. We'll send complete literature, we'll quote prices. And, you'll receive your "official" card identifying you as a (big shot) "Professional Opinioneer". Write or phone.

THE G. S. EQUIPMENT CO.

5317 St. Clair Ave. Cleveland 3, Ohio

ENdicott 1-0167, 1-3541

* "Dis-stressed" (no stresses).

The Flex-Tube Manometer is designed to enable the user of the spray booth to comply with the above directive.

For further data circle No. 22 on Reader Service Card inside back cover.

Copper Anodes

Copper anodes, designated as Anaconda "Plus-4" Anodes*, are being marketed by The American Brass Co., Waterbury 20, Conn. The manufacturer states that the anodes have been improved by the addition of carefully controlled amounts of phosphorus and minute amounts of other elements.

In use the anodes are claimed to produce the following advantages: freedom from anode sludge; no copper buildup in the solution; smooth, heavy deposits; more cathode deposit per pound of anode.

For further data circle No. 23 on Reader Service Card inside back cover.

* Patented.

Baronet Barrel Degreaser

Manufacturer: Baron Industries, 241 West Avenue 26, Los Angeles 31, Calif.

A trichlorethylene degreaser made from a standard 50 gallon drum has been developed for use where a relatively small quantity of metal parts must be degreased at any one time. Oily parts are lowered into the trichlorethylene vapor which condenses on the parts, washing away oil and grease.

Baronet Barrel Degreaser

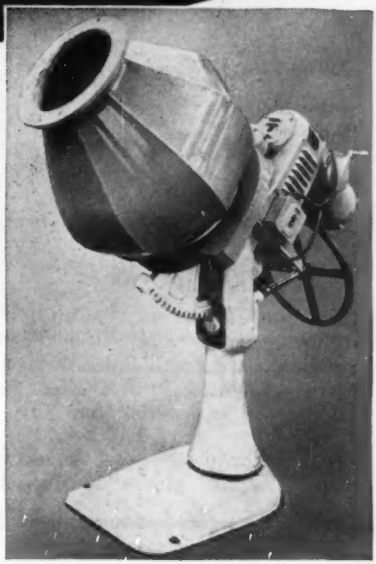
Cleaning material is heated to vaporization point by electric heating elements mounted in the base assembly. An air cooled, exterior condenser controls the vapor height and permits automatic reclaiming of the dirty solvent.

MORSE
VERTICAL DRUM TRUCK
ROCK-A-DRUM

Picks up 55 gal. drums, rolls them over for side draining. Becomes a rugged stand on 3" wheels.
MORSE MFG. CO., INC. 762 W. Manlius St. East Syracuse, N.Y.

UDYLITE SERVICE
DOESN'T COST—IT PAYS
These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.
OUR FIELD SERVICE STAFF IS LARGE
In fact, largest in the electroplating field. That means you get frequent service check-ups. We maintain Udylite equipment at top performance.
It's all free, of course. Just another plus when you buy from Udylite.
WORLD'S LARGEST PLATING SUPPLIER
THE Udylite CORPORATION
DETROIT 11, MICHIGAN

DEBURRS 400% FASTER



SAVES 40 MANHOURS PER WEEK
with

New FLASK-TYPE GLOBE *TILTING TUMBLING* BARREL

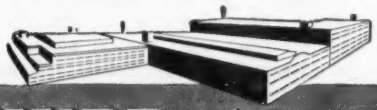
Former deburring of small precision electrical parts could be done by hand at a rate of only 40-50 pieces per hour, requiring a week for one run. One Globe Flask Type Barrel now handles the entire run of 2,500 pieces in one hour . . . a savings of 30% labor in the department. Tolerances held to .001 and .0005". These Globe Flask-Type Barrels handle steel, brass, aluminum and plastic parts with the same high output and quality finish.

Globe's new flask shell gives bigger pay-load capacity with tilting barrel control. It holds more, works faster with controlled agitation for uniform high quality parts. Low speeds for non ferrous and plastic materials.

FREE EXPERIMENTAL SERVICE

Hupp's experimental finishing laboratory will show you how to cut finishing costs. Just send samples of parts to be processed with a finished part. There's no cost or obligation.

Write Dept. F Today!



HUPP CORPORATION
GLOBE STAMPING DIVISION
1230 WEST 76th STREET • CLEVELAND 2, OHIO
SERVING INDUSTRY SINCE 1902

An illustrated data sheet is available from the manufacturer.

For further data circle No. 24 on Reader Service Card inside back cover.

Protective Glove

The Charleston Rubber Company, Charleston, S. C., has announced the development of a Neoprene industrial protective glove designated as "Neo-Sol." Introduced after two years of laboratory research, experimentation and testing, the Neo-Sol glove is a black glove with a red inner lining and a red roll at the cuff. It is made with curved fingers for easy, natural use, and is available with either "Grip-Saf" hand or smooth finish. It is being manufactured in five sizes, four weights, and in lengths from 10½ to 18 inches.

Information on Neo-Sol gloves and other "Charco" gloves is available from the Charleston Rubber Company, Stark Industrial Park, Charleston, S. C., or by circling No. 25 on Reader Service Card inside back cover.

Neo-Sol Industrial Protective Glove

UDYLITE SERVICE DOESN'T COST—IT PAYS

Udylite service begins with your first inquiry and continues as long as you need it. You are *not forgotten* after the sale. Udylite metal finishing "know-how" is always available at your request . . . and it makes no difference if your operation is large or small.

When you buy from Udylite you get "More Than A Pound." Udylite gives you these 6 important helps beyond outstanding equipment and tested supplies at no extra cost.

- A pilot plant where we check new plating problems and make recommendations.
- A Customer Laboratory for the testing of your solutions.
- Electrical Service for the latest in current usage recommendations.
- Field Service men who are regularly checking Udylite equipment now operating throughout the United States.
- Engineering Service to advise you regarding the best equipment to handle your new jobs.
- The new Udylite Research Corporation continually working to develop a new and better way of plating.

Call us in on any plating problem. Get these Udylite "More Than A Pound" services without cost or obligation.

THE Udylite CORPORATION DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

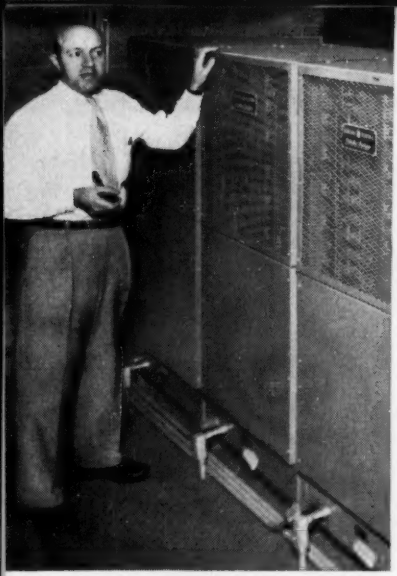
"Cold" Degreasing Solvent

The first large-scale production of a new nonflammable solvent for use in the metal and metal working industries has been announced by The Dow Chemical Company, Midland, Mich.

The product is Chlorothene (Inhibited 1,1,1-Trichloroethane). According to Dow, Chlorothene fulfills the industrial need for a low-toxicity, nonflammable solvent to be used in cold cleaning and cold degreasing operations. Chlorothene is particularly suited for these and similar applications.

Although 1,1,1-Trichloroethane by itself may corrode aluminum and aluminum alloys, Chlorothene, the new inhibited grade, virtually eliminates such corrosion except under the most drastic conditions.

For further data circle No. 26 on Reader Service Card inside back cover.



G-E RECTIFIERS located in a separate room leave more space for plating tanks, and avoid the corrosive atmosphere.

INSPECTING THE CONTROL STATION at one of the tanks where piston rings are being chrome plated. The operator's control station permits regulation of the voltage level at each tank.

G-E Plating Rectifiers Help to Triple Capacity of Plating Room at Muskegon Piston Ring Co.

New General Electric plating power supplies have enabled the Muskegon Piston Ring Company of Muskegon, Michigan, to triple its plating capacity in the same working space. By mounting copper oxide rectifiers on an enclosed balcony outside the building, with a separate operator's control station at each plating tank, Muskegon was able to use the entire floor space for plating tanks.

COMPLETE FLEXIBILITY of plating room arrangements is provided by General Electric rectifier units. Not only is it possible to install the rectifiers away from the plating room, but the rectifiers are kept clear of the corrosive plating room atmosphere as well.

LESS MAINTENANCE is required for G-E rectifier plating power supplies. The scarcity of moving parts means less maintenance, since only the cooling fan requires lubrication. Installation costs are less, since G-E plating rectifiers require no special foundation.

Operating costs are lower, because G-E rectifier units assure you of the most efficient application of either copper oxide or selenium with the proper circuit for each voltage rating.

AUTOMATIC REGULATION is available as an integral part of G-E plating power supplies, or can be added later to manually-controlled units. In addition to manually and automatically-controlled units, economical 12-volt barrel platers are available in ratings from 500 to 2000 amperes.

ADDITIONAL INFORMATION on any of General Electric's plating power supplies is available from any authorized G-E agent, or by writing Section 464-16E, General Electric Co., Schenectady 5, N. Y.

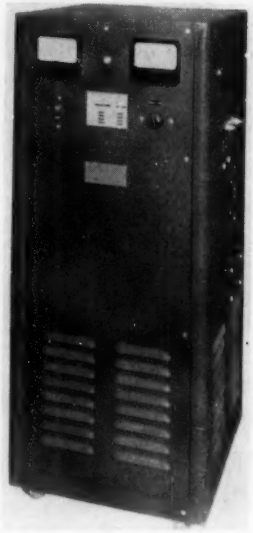
GENERAL ELECTRIC

Selenium Rectifier

The Clinton Selenium Rectifier, engineered to meet the highest standards of the metal finishing industry, has been announced by the Rectifier Div., Clinton Supply Co. Inc., 112 S. Clinton, Chicago 6, Ill.

The rectifier cabinet is designed for free flow of air throughout to provide adequate cooling. Air is drawn in from side louvers near the bottom, but foreign matter is not drawn off the floor with the air. The cabinet is attractively finished for utility and corrosion resistance.

The stack assembly is of rectangular copper bar construction to allow free flow of air, and is coated to prevent corrosion. Of particular value is the center-sealed stack. The "outside" collector serves as a seal against paint and moisture penetration to the inside or center collector. This ensures clean contact between the inside collector and plate surface, and makes possible a near-zero resistance even after years of operation.



Clinton Selenium Rectifier

Transformers are built to deliver full rated load continuously at a power factor approaching 100 per cent. They are heat-proof, vacuum impregnated, have conservative KVA rating, and are built to take continuous overload. A baked protective finish prevents damage from acid or alkali fumes, moisture, and so on.

An illustrated catalog, Bulletin No. 4553-A, is available.

For further data circle No. 27 on Reader Service Card inside back cover.

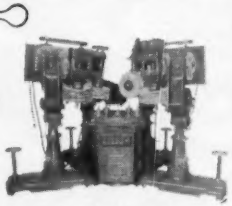
IS
YOUR
PROBLEM
BURNISHING?
HOLLAND SUGGESTS:
Motor Driven Tilting Tumbling Barrels for cleaning, polishing, grinding, deburring, sanding, burnishing and various other applications.
WRITE for New Holland Equipment Catalog
J. HOLLAND & SONS, INC.
276 SOUTH NINTH STREET • BROOKLYN 11, N. Y.

Bright Copper Process

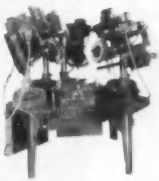
Jelco Finishing Equipment Corp., 153 E. 26th St., New York 10, N. Y., has announced the development of a brightener for copper plating solutions. Designated as "Jelco Cop-

Amazing Versatility of Packer-Matics

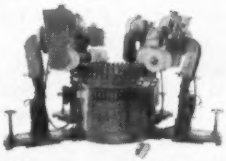
TURNS "SPECIALS" INTO ROUTINE JOBS!



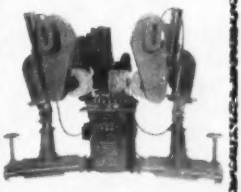
No. 4-5 ROTARY INDEXING



No. 9-4 ROTARY INDEXING

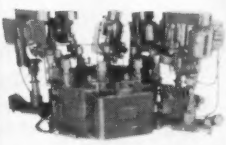


No. 14-45 CONTINUOUS ROTARY



No. 4-24 CONTINUOUS ROTARY

No. 1 STRAIGHT LINE CONVEYOR



No. 13-10 ROTARY INDEXING

they'll "polish off" your finishing costs

Cost-wise production men recognize and demand the flexibility, speed, and efficiency of these Packer-Matic completely automatic polishing and buffing machines. Whatever your finishing requirements — buffing, polishing or deburring, regardless of shape, size or metal — Packer-Matics can do it faster, economically and with greater uniformity than hand operation.

Packer-Matics are especially designed to meet your specific requirements. Production rates are boosted — buffing costs slashed while *superior finishes are constantly maintained — each piece finished exactly alike.* Packer-Matic engineers are always ready to show you how improved finishing techniques can speed up production, increase your profits, reduce overhead. *Write us today.*

PACKER-MATIC

AUTOMATIC MACHINES FOR BUFFING • POLISHING • DEBURRING

THE PACKER MACHINE COMPANY • MERIDEN, CONN.

Brite," the material may be used in both still tanks and barrel copper plating solutions.

It is claimed that this liquid brightener will produce a softer, smoother, highly reflective surface finish. Through the use of an agitated bath, the current density range may be extended, but brightness is also obtained in a non-agitated bath.

Write for instruction sheets on Cop-Brite, or circle No. 28 on Reader Service Card inside back cover.

Peelable Protective Coating

A peelable protective coating, designated as Strip-Kote, has been developed by Adhesive Products Corporation, 1660 Boone Avenue, New York 60, N. Y.

Imparting a tough transparent film when applied, this new coating prevents scratching or marring of highly polished surfaces during fabrication and shipping, the manufacturer states.

Strip-Kote is a quick-drying liquid that may be brushed on, dipped or sprayed. It forms a highly abrasion-resistant film that can be stripped easily when desired.

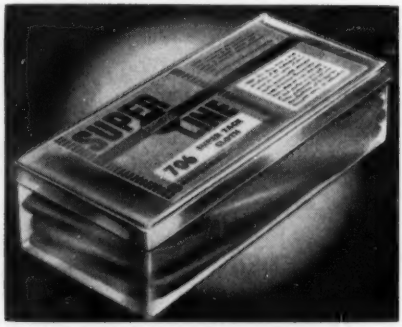
For further data circle No. 29 on Reader Service Card inside back cover.

Super Tack Cloth

Associated Producers, Inc., 1019 East Eight Mile Rd., Hazel Park, Mich., has announced production of a tack cloth packaged in a clear plastic box. Designated as No. 706 Super Tack Cloth, it is designed to pick up and hold on to dirt and dust particles from surfaces to be painted.

As described by the manufacturer, Super Tack is an open mesh textile; woven, not knitted. It is "hot-treated" with a solution specially developed by Associated Producers.

Recommended for use as a final preparation before spraying paint, lacquer, or enamel, the manufacturer states



Plastic box containing six No. 706 Super Tack Cloths.

that a finish of superior quality can be obtained through the use of Super Tack Cloth.

Six Super Tack Cloths, folded to handy pad size, each 18 by 36 inches, are sealed in a clear plastic, reusable box. The plastic box provides an easy way to keep used cloths in condition for further use.

For further data circle No. 30 on Reader Service Card inside back cover.

Aluminum Etchant

Oakite Products, Inc., New York, has announced the recent addition to its line of industrial cleaning and allied materials of "Oakite Composition No. 160," a granular alkaline-type aluminum etchant reported to provide a rapid, uniform controlled etch on aluminum, and eliminate the former troublesome problem of hard sludge buildup on equipment surfaces.

Among the advantages claimed for this new material by the manufactur-

MANUFACTURERS OF
PROTECTIVE AND
DECORATIVE FINISHES

. . . and what are *you* looking at? Looking forward to better products, better business, bigger profits, no doubt? Well, let us help you. We are forward-looking, too, in the way our shop is equipped, in the way we use our experience, in the way we work to satisfy our customers' *future* needs. We make all the standard finishes, and a number of very interesting "specialties". Try us.

Affiliate: GORDON BARTELS CO., *Roller Coating Specialists*

er are the following: (1) it is readily soluble in water to form working solutions having exceptionally long life; (2) it offers good rinsability in either cold or hot water; (3) upkeep requirements are low; (4) it gives off no troublesome fumes; (5) it does not form hard sludge on tank surfaces and heating coils—the sludge created during etching operations with this material is no more than a soft slurry, which may be flushed down the drain when the solution is discarded.

Additional data regarding this new aluminum etchant will be sent, without charge, to readers writing on company letterhead to Oakite Products, Inc., 120 Rector Street, New York 6, New York.

Heat Resistant Finish

The accompanying photo shows type of heat producing equipment produced by Hevi Duty, of Milwaukee, which is now finished in Sicon Green, a silicone base finish that holds its attractive color in spite of the heat that's naturally present in equipment of this nature.

Sicon is a silicone base finish that is said to be remarkably heat resistant, and now, is available in various colors that retain gloss and color under temperatures up to 550 deg. F.

Sicon is produced by the Midland Industrial Finishes Company, Waukegan, Illinois. Literature is available describing color applications of Sicon, as well as aluminum and black applications which are stable under temperatures up to 1000 deg. F.

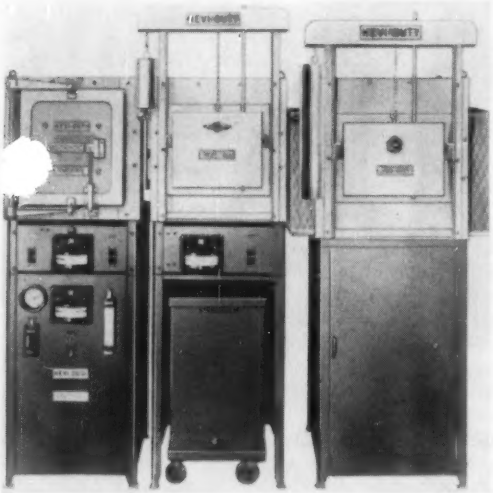
For further data circle No. 31 on Reader Service Card inside back cover.

Flexible Lining Material

An easily installed, flexible lining material said to combine excellent chemical, physical, and electrical characteristics, has been announced by Kaykor Industries, Inc., 4421 Broad Street, Yardville, New Jersey.

Designtaed "Vyflex L-10," the new thermoplastic lining based on poly-vinyl chloride resins is suitable for numerous industrial lining needs. It protects such varied equipment as tanks, fume ducts, tank cars and trucks, and the highly complex equipment used for mixing, storing, washing and transporting of corrosives.

Vyflex L-10 is said to resist corrosive action of common acids, alkalies, salts, plating solutions, and organic com-



Hevi Duty heat treating furnaces finished in Sicon Green

pounds, oxidizing acids like nitric, chromic, and phosphoric, and highly concentrated strong alkalies at temperatures up to about 160 deg. F.

Vyflex is inherently elastic; thermal expansion and contraction will not crack it, and the damaging effects of mechanical abuse are minimized. Good insulating qualities minimize current loss in electrolytic reactions. And the inherently smooth, highly polished surface of Vyflex L-10 simplifies cleaning, speeds solution flow, and provides superior abrasion resistance.

Complete information on Vyflex L-10 is provided in "Facts You Should Have On Vyflex L-10," and Engineering Bulletin L-10, available on letterhead request to Kaykor Industries, Inc., 4421 Broad St., Yardville, N. J.

Inhibitor

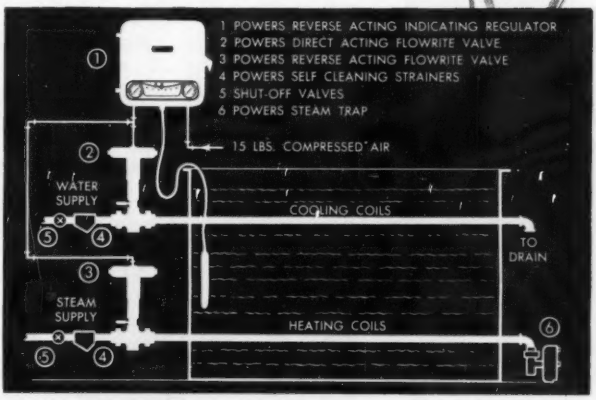
Developed as an additive to muriatic and sulfuric acid pickling solutions, "Thor Inhibitor" has been announced by Thor Chemical & Equipment Corp., 77 S. 5th St., Brooklyn 11, New York.

Use of the inhibitor promotes rapid and uniform removal of rust and scale from steel parts, and prevents etching of the steel surface, it is claimed. The inhibitor also forms a slight foam blanket on the surface of the pickling solution which is said to reduce the evolution of fumes.

The manufacturer points out that the use of Thor Inhibitor in acid or

POWERS

CAN HELP YOU — if you want precise control for a process with both HEATING and COOLING.



Application above is typical of thousands of installations now accurately under control by POWERS. Whether your problem calls for control of heating and cooling of liquids or air, Powers has the right control and experience to help you get the results you want. Bull. 370 describes the Temperature Indicating Controller shown above. Write for a copy.

THE POWERS REGULATOR CO.
Skokie, Ill. • Offices in 60 Cities

Over 60 Years of Automatic Temperature and Humidity Control

in rinse water following pickling will retard the formation of rust on the pickled steel.

For further data circle No. 13 on Reader Service Card inside back cover.

Backstand Idler

A heavy duty backstand idler with a 6-inch wide plastic wheel has been developed by Fenlind Engineering Co., Rockford, Ill., for use with belt polishing machines. Its width affords outstanding flexibility in abrasive belt selection, the manufacturer states. Two remote control arms offer more accurate tracking and tensioning than most other idler designs.

Width of the idler wheel permits a belt width range of ¼ to 6 inches. Use of plastic in the wheel prevents surface marring by abrasive particles.

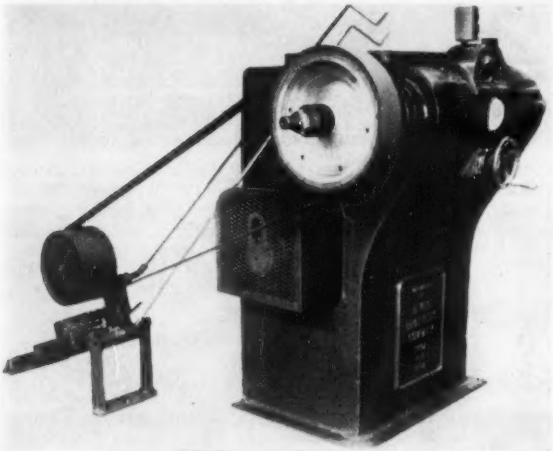
Called the Fenlind L-29 Backstand Idler, the unit has two control arms which extend from the idler to within easy reach of the operator at the polishing lathe. With one of the arms, he can tilt the idler wheel from one side to the other. This lateral allows adjustment of the belt track without disturbing the distance between wheel centers.

With the second control arm, the lathe operator can slide the idler wheel assembly back and forth on its stand. Thus he can correct belt tension to make up for changes in either belt length or contact wheel size without opening the blower hood. A range of contact wheels from 3 to 16 inches in diameter may be accommodated by this traversing mechanism.

Precision machining enables the remote control arms to be operated easily and smoothly. Shield caps keep the sealed precision bearings from dust, abrasive particles, sanding refuse and belt grease. Rugged spring action allows greater tension on wide belts and more accurate tension adjustment on narrow belts.

Brackets of the sturdily-constructed unit are of cast iron and tubing. Weight is approximately 60 pounds.

For further data circle No. 32 on Reader Service Card inside back cover.



Fenlind L-29 Backstand Idler in operating position.

Rayon "Fire-Flock"

Ten new ultra-brilliant flock colors in fluorescent hues, which are easy to apply with all types of equipment without "pilling" or "balling," have been announced by Cellusuede Products, Inc., 500 Madison St. Rockford, Illinois. The flock, now be-

ing marketed under the trade name of "Fire-Flock," is especially processed from the same viscose rayon as Cellusuede's regular line of rayon flock and is readily adaptable to a wide range of uses. The ultra-brilliance of the new colors adds extra vigor and sales appeal and increased color visibility over ordinary hues.

Cellusuede "Fire-Flock" has been especially developed and processed to flow easily. It fills design patterns quickly with a dense, uniform coating . . . will not stick to application machinery and therefore eliminates extra tedious cleaning operations when color changes are necessary.

The new Cellusuede "Fire-Flock" can be applied equally well with spray, mechanical beater-bar or electrostatic equipment. The several types of electrostatic equipment, however, require flock processed to suit the individual equipment. Therefore, specifications indicating the type of electrostatic equipment in use is necessary to obtain proper material and avoid application problems.

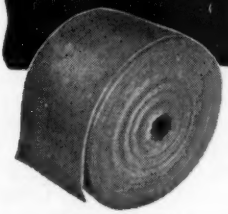
Free sample color cards are now available covering the following fluorescent colors:

#5038 Red
#5041 Crimson Red
#5026 Green
#5039 Halloween Orange
#5037 Blue
#5040 Orange
#5032 Rose
#5028 Yellow
#5035 Red
#5027 Green

For further data circle No. 33 on Reader Service Card inside back cover.

For Dust Free Finishes!

BOND TACK CLOTH



IN ROLLS
Cut off any size piece to use as needed.

IN BULK
Cut and folded. Ready to use.

STAYS SOFT AND TACKY — A SPECK-FREE FINISH EVERY TIME

Now Available in Rolls or Cut Bulk—White or Gold In Three Different Types of Cloth

Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36" wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.
No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up!
The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" for ease of handling. ALL BOND TACK CLOTH is *Spontaneous Combustion Proof, Lint-Free* and *Wax-Free*. Gives a sparkling speck-free Finish every time. Clean and sanitary. No waste.

TRY THEM and COMPARE RESULTS. Samples Gladly Sent Upon Request.

BOND CHEMICAL PRODUCTS CO.
"The Tacky Wiper Specialists"
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ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES —144 to the Carton

A WARRANTY OF SATISFACTION IN EVERY CARTON

Electrostatic Painting System

An electrostatic system for painting refrigerators has been developed by Ashdee Products, Inc., 18029 Dixie Highway, Homewood, Illinois. Utilizing existing manual spray facilities, automatic spray guns and an electrostatic field are installed. As can be noted in Fig. 1, paint spray is directed through an ionizing electrode which is charged to high voltage. The paint particles pick up a negative charge in the electrostatic field and are attracted electrically to the metal refrigerator door, the manufacturer explains.

To provide maximum control and flexibility air is used in conventional automatic guns to atomize the paint. The spray guns are turned on and off automatically with specially designed trigger mechanisms. Cabinets of various sizes, and other parts, may be mixed on the conveyor line. The proper number of spray guns are turned on for a cabinet of a given size, and they stay on for the proper length of time to paint the cabinet. The guns stay off for space between cabinets and for empty hangers, of course. Distance from spray guns to ware is said not to be critical in the Ashdee System.

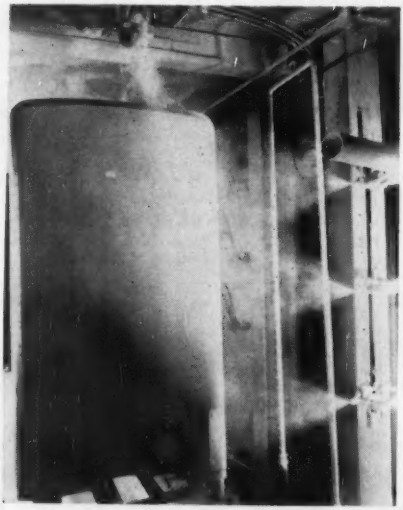


Fig. 1—Door of refrigerator being painted automatically with an Ashdee Electrostatic Painting System.

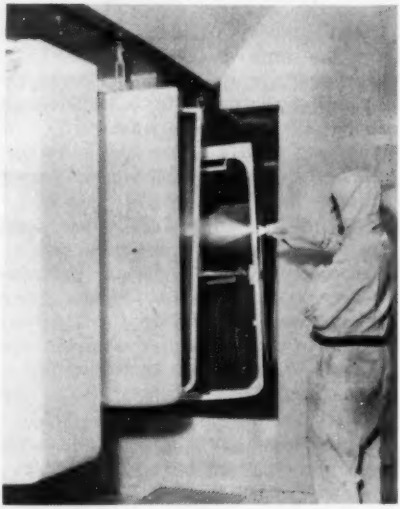


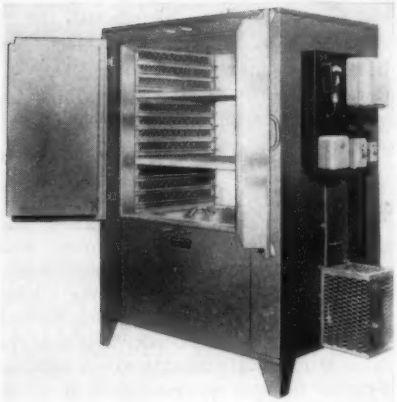
Fig. 2 — Operator performing manual touchup on refrigerator doors and cabinets after electrostatic spray painting.
(Photographs courtesy the Coolerator Company, a division of the International Telephone and Telegraph Company.)

It is stated that in one large refrigerator plant about 90 per cent of the total area is painted automatically and 10 per cent requires manual touchup (Fig. 2).

For further data circle No. 16 on Reader Service Card inside back cover.

Batch Type Oven

Announcement has been made of a line of batch type ovens, which will be marketed by the Burdett Manufacturing Company of Chicago.



Batch Type Oven

They are said to be of the heavy duty, convection type and especially designed to fill the needs of precision laboratory testing and small parts production. These ovens will be available either electric or gas-fired. Maximum temperature uniformity throughout the entire work chamber is claimed by virtue of a highly efficient air-recirculating system. Forced air penetrates to every part being processed, therefore, maximum efficiency and economy is the rule.

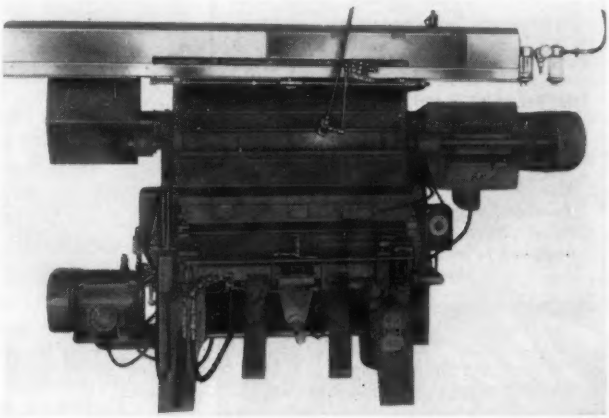
These Burdett Ovens are built with either horizontal air flow (Models "HB" and "HA") with heating elements located below work compartment, and vertical flow (Model "V") with heating elements in a plenum chamber in the rear.

Features include: Inconel-sheathed "Life-Time" heating elements, high-low heat switch for close control and quick recovery, adjustable air volume, adjustable positive exhaust and intake, sturdy construction equal to years of hard abuse, and easy accessibility of all parts.

Literature may be had by writing to C. E. Fitzgerald, sales manager, Burdett Manufacturing Co., 3447 West Madison Street, Chicago 24, Illinois.

Spray Gun Mover

The "Clair Spray Gun Mover," a hydraulically-operated device for applying surface finishing compounds to wide faced buffs, has been introduced by Clair Manufacturing Company. This machine, which will operate efficiently on any standard surface finishing machine, is covered by U. S. Pat. No. 2,677,219 recently issued and based upon nine claims. Design of the Clair Spray Gun Mover eliminates overloading of sprayed surfaces and



Clair Spray Gun Mover

waste of compound, according to the manufacturer.

In operation, the Clair Spray Gun Mover completes one spray pass each time the operator touches the foot control. The equipment is available in a variety of sizes—the largest permitting a coverage of from 2 to 40 inches. A single gun covers the entire width, and a dependable supply of clean, dry, oil-free air is assured at all times. Built with a minimum of moving parts, the Clair Gun Mover is easily installed and in all cases is of shorter width than the equipment being serviced. Basic components include: frame, bearing mounted carriage, air motor, rack and pinion drive, adjustable cam actuated traveling air valve to which spray nozzle is attached, automatic electrical control circuit and dust-proof enclosure. For additional details on the Clair Spray Gun Mover, write direct to Clair Manufacturing Company, Inc., 1010 South Union Street, Olean, New York, or circle No. 34 on Card inside back cover.

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RHODIUM FINISH
THOR-O-WHITE
For your better white work
Economical • Easy to Operate
Long-lasting corrosion resistance
We will be pleased to forward a copy of simple directions and any other information you may require without obligation.
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Selenium Rectifier

The Walker Division of the Norma-Hoffmann Bearings Corporation has announced a line of selenium and other dry disc rectifiers to meet every requirement of the electroplater. Closely regulated power supplies having low or high ripple content dependent on plating requirements are available. Special designs to meet customer requirements are common.

Low temperature rise equipment operating in high ambients without harmful effects to life and dependability are built into the equipment as is overload capacity. Information on Walker long-life rectifiers is available on request.

For further data circle No. 35 on Reader Service Card inside back cover.

Platers Putty

A stop-off material for threaded holes and similar cavities, designated as "Platers Putty Formula No. 5," has been developed for use by the plating industry. The manufacturer, Anderson's Plastics Co., Box 416, Natick, Mass., states that the stop-off can also be used to cover or cap nuts and screws to prevent metal deposition during electroplating operations.

Claimed to be resistant to chromic acid, Platers Putty does not dry or harden under normal conditions. The stop-off can be applied and used without heating, or it can be baked at 300 deg. F. for 15 to 20 minutes. After

baking it becomes flexible and rubbery, so that certain plugs so treated can be reused.

After plating or processing, Platers Putty Formula No. 5 can be cleaned from the metal product with naphtha.

For further data circle No. 36 on Reader Service Card inside back cover.

NEW BOOKS

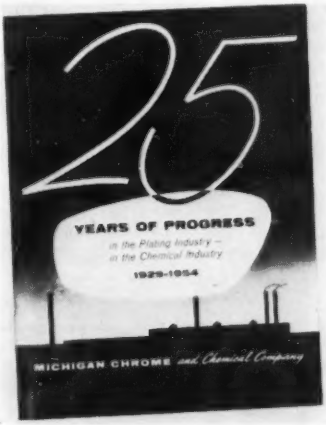
POLISHING AND BUFFING LATHES. A complete line of polishing and buffing lathes is featured in a bulletin now available from **Frederic B. Stevens, Inc.,** 1800 18th St. Detroit 16, Mich.

In addition to ten models of constant speed lathes designed for various operations, this Stevens bulletin also describes four models featuring variable speed operations, available in many instances in optional speed ranges.

A special feature of this new booklet is a comparative chart outlining all standard specifications and important features of each Stevens lathe model in easy-to-read form for ready selection of the right model for any particular job.

Copies of this complete bulletin may be obtained from the nearest Stevens office or from the Detroit office by requesting **STEVENS POLISHING AND BUFFING LATHE BULLETIN TP-55.**

FACILITIES, PERSONNEL, AND PRODUCT BULLETIN. Issued in commemoration of the company's 25th anni-



versary, a bulletin entitled, "25 Years of Progress in the Plating Industry—in the Chemical Industry, 1929-1954," is available from **Michigan Chrome and Chemical Company,** Detroit 13, Mich.

The bulletin presents a historical sketch of the company's growth, photographs of company officers and key personnel, illustrated descriptions of the company's facilities for copper, nickel, chromium, cadmium, zinc, silver, and microlloy plating, and details showing the rigid quality control under which production is carried out.

Development, production, and sales facilities and personnel in the Chemical Division of the company are presented. National distribution of Miccrosol plastisol products manufactured by Michigan Chrome is pictured, and descriptions of many of the company's products for the metal finishing industry are included.

To obtain a copy of the bulletin, write to Michigan Chrome and Chemical Company, 8615 Grinnell Ave., Detroit 13, Michigan.

FINISHING OVENS. An 8-page brochure on finishing systems for baking and drying all types of industrial equipment is offered by the **Michigan Oven Company,** 415 Brainard, Detroit 1, Mich.

The brochure outlines important features to look for when purchasing a finishing oven and includes six case his-

NEW BOOKS

tories showing how various manufacturers solved their finishing problems effectively. Additional information is in-

cluded which will be of value to anyone contemplating the purchase of a finishing oven.

Quality Control—Second Edition, by Norbert L. Enrick. 181 pages. Published by The Industrial Press, 148 Lafayette St., New York 13, N. Y. Price $4.00.

In this enlarged second edition, some sixty pages of new text, tables, and charts have been added to provide a more complete and useful discussion of quality control.

As in the first edition, a simple direct approach to each subject is used and both highly technical language and complicated mathematical formulas are avoided. The emphasis is placed on the practical application of quality control and an understanding of the basic methods. As such, this book makes an excellent introductory text for both the student—who although not planning to specialize in quality control needs an understanding of it—and for the practical man who wants to be able to improve the quality of his product and to reduce scrap and spoilage.

All the essential techniques of modern quality control are covered, such as sampling plans, control charts, analysis of variations, statistical determination of tolerances, as well as administrative procedures and controls.

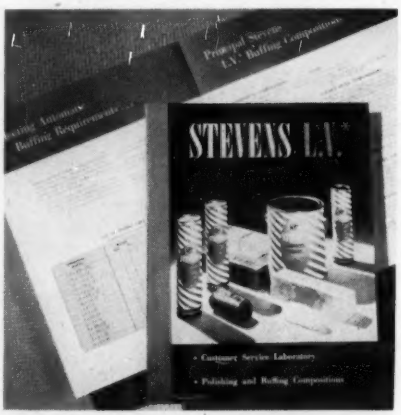
BUFFING AND POLISHING. A 16-page bulletin featuring Stevens L.V.* (Laboratory-Verified) reports and how they can be used to aid metal finishing job shops or the metal finishing department in larger plants has been released by Frederic B. Stevens, Inc., Detroit 16, Michigan.

This new bulletin presents more than a list of polishing and buffing compositions regularly available. It features the Stevens L.V. Report and explains how similar cost-cutting reports can be obtained for any plant metal finishing problem.

One section is devoted to "How Stevens L.V.* Reports Helped Others," a list of successfully solved metal finishing problems; "How To Test Buffing Compositions in the Plant;" "Stevens L.V.* Composition Recommendations for Plated Surfaces;" "Stevens L.V.* Composition Recommendations for Unplated Surfaces;" "Automatic Buffing Requirements."

Copper, nickel, stainless steel and plastic buffing are also covered plus a section devoted to liquid compositions.

Of particular value to metal finishing



superintendents and foremen is a "guide" Reference Index to treatment of materials at the back of the bulletin.

Copies of this booklet may be obtained from your local Stevens office or by writing to **Frederic B. Stevens, Inc.,** 1800 18th St., Detroit 16, Michigan.

CLEANING PRIOR TO ELECTROPLATING. A circular entitled, **"WYANDOTTE PRODUCTS FOR CLEANING PRIOR TO ELECTROPLATING,"** details the features of the 11 products described in the folder, including the dust-free and foam-cutting abilities of the 3 electrocleaners. Two valuable charts are also included in this **CIRCULAR C-680.**

One of the charts details a typical cycle for preparing metal for plating. The second chart is a products guide for cleaning before electroplating. Information is contained in the charts and in the folder regarding acid treatment, electrocleaners and soak cleaners.

Copies of Wyandotte **CIRCULAR C-680** may be secured from any of Wyandotte Chemicals' 17 district sales offices, or from local Wyandotte sales and service supervisors who headquarter in 138 North American cities.

Enamel Application By Dipping. The second volume in a series of manuals on Porcelain Enamel processing methods, this book is authored by Paul S. Cecil of Seaporcel Metals, Inc. Prepared under the sponsorship of the Process Development Committee, Porcelain Enamel Institute, Inc., Washington 6, D. C.

The booklet is divided into three main sections. The first deals with general application and considers four generally accepted methods of applying liquid porcelain enamel that comes under the classification of dipping. They are: rivet tongs, spring tongs, hand dipping or slushing, and draining.

The next main section entitled "Methods of Application" gives attention to equipment, enamel control, the recirculating dip tank, the temperature controlled dip tank, and the humidity controlled area.

Under the section, "Material Preparation," the manual then discusses the properties of the materials as they affect draining properties.

The booklet, available at $1.00 a copy from the Institute, concludes with a 10 page comprehensive appendix on mill additions.

BUFF CATALOG. A comprehensive, twelve-page booklet covering three main divisions: sisal buffs, cloth buffs, and polishing wheels. The sisal section includes many types of patented Joe-D bias sisal buffs which are frayproof, cool running and have longer life. Types shown include bias, spoke finger and conventional buffs with fibreboard and steel centers in sisal, sisal-with-cloth and sisal-with-paper.

To obtain your copy, write your distributor or direct to the **Joe-D Buff Company,** Sandwich, Illinois.

NEWS of the Industry

NEW PLANTS

FREDERIC B. STEVENS OF CANADA, LTD., has announced the completion of a new foundry and metal finishing supply warehouse in Windsor, Ontario, near their present plant and warehouse at 1262 McDougall.

In addition to the complete Stevens line of foundry facings, fire brick, plating chemicals and metal finishing supplies, Stevens is also stocking in the new warehouse the complete MacDermid metal cleaner and plating solution line, Roto-Finish processes and supplies, and American Colloid Volclay Bentonite and wood flour.

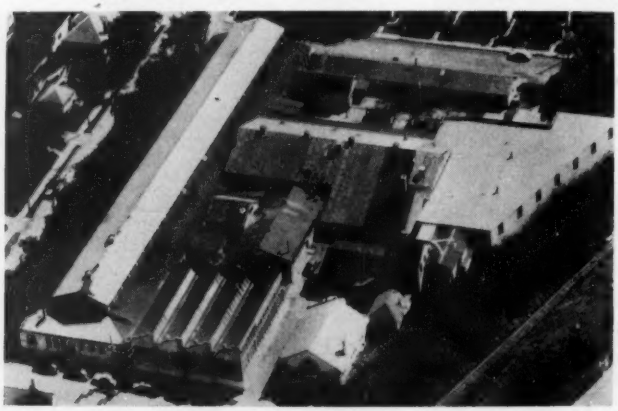
A new addition to the Springfield, Ohio, plant of **FREDERIC B. STEVENS, INC.,** metal finishing and foundry equipment manufacturer, was recently completed.

The new facilities have enabled the manufacturing operations to expand production of the Stevens complete line of automatic rack and automatic barrel plating and metal processing equipment.

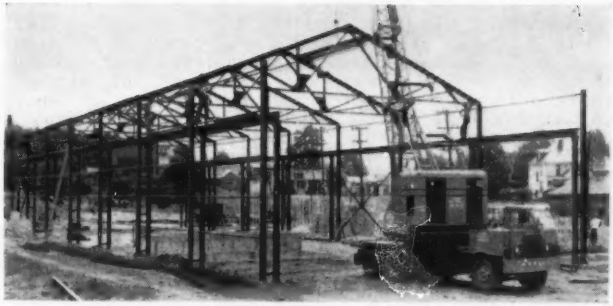
The company's production of dryers and their new metal finishing waste disposal equipment will also be speeded up as a result of the expansion.

To better serve Stevens customers in the Ohio and Central States area, provision was also made for special warehousing facilities to make possible rapid delivery of plating and metal finishing supplies in that area.

THE R. C. MAHON COMPANY, 6565 East Eight Mile Road, Detroit, Mich., has just completed another expansion program to meet the space demands of some of its rapidly growing divisions. The latest program added some 130,000 sq. ft. of factory space and 20,000 sq. ft. of office space. The company's modern



Addition to Springfield, Ohio plant of Frederic B. Stevens, Inc.



New American Plating plant under construction at 510 West Grandview Ave., Zelienople, Pa.

plant, all of which has been constructed since 1942, now provides a total of 1,300,000 sq. ft. of manufacturing, fabricating and storage space, and 132,000 sq. ft. of office space. In addition to this, the company maintains a sales-engineering office in Chicago and lists sales representatives in ninety-five principal cities throughout the country.

AMERICAN PLATING, INC., formerly Ellwood Electroplating, Inc., will move from Ellwood City to Zelienople, Pa., where a modern new plant is now being erected at 510 West Grandview Ave. The plant will have in excess of 10,000 square feet of floor space.

American Plating, Inc., performs electroplating, pickling and phosphatizing for industry. Plating processes include hard chromium, copper, zinc, nickel, tin and other metals.

WAGNER BROTHERS, INC., manufacturer of metal finishing equipment and supplies, has consolidated all equipment manufacturing facilities in a new plant at 7800 Dix Rd., Detroit, according to Fred Wagner, sales manager.

"Manufacturing operations formerly carried on at several smaller, separate locations in Wayne and Detroit will now be done at the Dix Rd. plant. These manufacturing operations include fabrication of automatic and semi-automatic plating machines, rectifiers, liquid filters, transformers, precision hard chrome plating machines, plating barrels and the construction of steel tanks and linings," stated John Glass, plant manager.

The plant has over 30,000 square feet of manufacturing area on the ground floor with additional space for engineering and estimating departments and a well equipped electrical research laboratory. Two 10- and 6-ton capacity overhead cranes running the full length of the building simplify movement of heavy steel fabrications.

Wagner Brothers' main office is still located at 432 Midland Ave., Detroit 3, Michigan. Warehousing of plating chemicals and supplies and all anode production will remain here.

Research and product development in chemical cleaning took another giant step on September 15, when **OAKITE PRODUCTS, INC.**, threw open the doors

Wagner Brothers, Inc. manufacturing plant at 7800 Dix Road, Detroit.

to new, expanded laboratories at 350 Hudson Street, New York City (Fig. 1).

John A. Carter, president of the concern, and J. J. Basch, manager of research and product development, were on hand to welcome the visitors. Mr. Carter, in a brief opening talk, stated that, "Our 45 year history has been a constant research and service program, and these new facilities will enable us to make even greater strides in furnishing modern industry with the products it demands."

Guests and officials of the company took part in the opening ceremony and then toured the laboratories, which cover 30,000 square feet on a single floor (Fig. 2).

The laboratory, which is subdivided into three major sections—product development, customer service, and engineering —will continue to devote itself to the cleaning and sanitation problems of the nation's production and service industries. In addition, a complete pilot plant is planned for the small scale manufacture of detergents and solvents prior to extensive field testing.

The chemical research laboratory, manned by a staff of chemists and chemical engineers, working in 11 special laboratories, spearheads all new product developments. Here experienced personnel devote their time and talents to such specific things as bacteriological, inorganic, transportation and oil refinery, analytical, conversion coating, and organic research projects.

Each laboratory is set up with modern equipment to aid in the study of various soils and the effect different cleaners have on them. Among the many precision instruments shown were a tergitometer, which was used to test the cloth washing effectiveness of a single product 10,000 times; reflectometers, an ion exchange separator, polarizing and ultramicroscopes.

Materials and methods for cleaning and treating metals for subsequent operations were demonstrated in several laboratories.

In the conversion coating laboratory (Fig. 3), tests were being conducted on

Fig. 1—John A. Carter, President of Oakite Products, Inc., surrounded by members of the company's research and product development staff, pulls the switch to open the firm's new laboratory facilities. Three times the size of the former quarters, the new space houses Oakite's Research Development, Customer Service, and Engineering Laboratories.

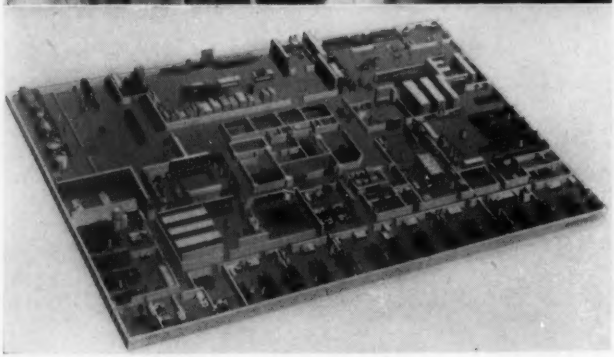


Fig. 2—Cutaway view of Oakite's new laboratory facilities. Individual laboratories, devoted to bacteriological, analytical, organic, inorganic and special industry research run from center left across the bottom of the drawing. The future pilot plant and the exhibit and engineering departments are at the top, and the customer service laboratory at centerright. Wet-testing rooms, storage areas, conference rooms and offices are in the center.

zinc phosphate coated panels with a paint coater, impact tester, conical mandrel, and scratch tester, as well as the standard salt spray machine. It was pointed out that a good phosphate coating should not only lock paint tightly in place, but should prevent the spread of corrosion in the event the paint coating is damaged and the surface exposed. The use of a special cleaner, combining acid and solvent properties, on oily and rusty panels was demonstrated.

A burnishing solution was being tested in a small barrel in the organic laboratory (Fig. 4), and the results of the test were apparent in the collection of brass pieces nearby, some burnished, the others still rough and dull. Experiments were also being made on solutions designed to lower the resistance of aluminum to spot welding, and on paint strippers designed for use on synthetic as well as oil-based paints.

One of the special laboratories was actually a small-scale plating shop (Fig. 5). Comparison tests were conducted on pieces plated under different conditions, and following electrocleaning in various solutions.

A trip through the customer service laboratory (Fig. 6), which handles an average of 1500 requests a year for technical advice and study, revealed a wide assortment of equipment used to simulate a customer's actual production methods. Two-, four-, and five-stage automatic washing machines, a complete electroplating line, burnishing and barrel finishing equipment, salt spray chambers—even a humidity cabinet that duplicates any humidity from desert to coastal—are used daily in determining the answers to cleaning problems.

In the area earmarked as a future pilot plant, a display was set up to show the 30 different pieces of cleaning equipment designed and manufactured by the engineering laboratory. It was emphasized that such equipment was created for the express purpose of mechanizing many tedious and costly cleaning operations—a mechanization, the company pointed out, that has brought industry considerable economies in both manpower and material. Equipment displayed, which ranged in size from a five-ounce acid-pouring spout to a 328-pound Interior Tank Cleaning Unit, included solution spraying units, steam detergent guns, solution control equipment.

Fig. 3 — In this conversion coating laboratory, chemists develop, test, prove and improve phosphating materials which add to the attractiveness of metal appliances, by increasing the grip between the metal and its enamel finish. Special equipment—paint coater, impact tester, conical mandrel, scratch tester, and salt spray chamber — test the effectiveness of zinc and iron phosphate coatings.

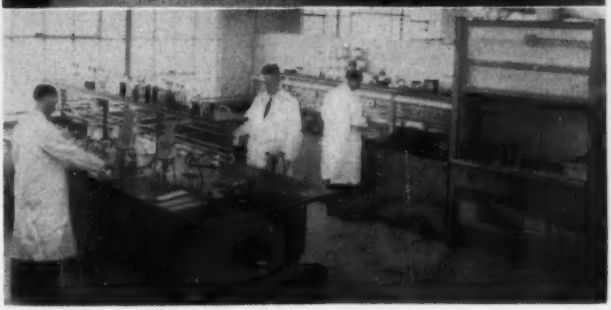


Fig. 4 — Developing new and improved materials for stripping paint, for cleaning aluminum and for barrel finishing feature the work in this section of Oakite's new laboratories. Chemists here test new aluminum cleaners, test the efficiency of cleaning before spot welding, develop new materials for paint stripping and barrel finishing.

An official spokesman stated that the new laboratories, while equipped to handle any problem industry might have, would go on to even greater expansion to match the increasing complexities that crop up in industrial cleaning. He stated further that industrial cleaning is a rapidly expanding industry, and that research and product development are its very life blood.

COMPANIES

A **COATINGS SYMPOSIUM** for the West Coast protective coatings industry will be conducted by **HERCULES POWDER CO.** in Los Angeles, November 1-5.

Designed to acquaint the protective coatings industry with new developments in a wide variety of fields, the symposium is endorsed by the Los Angeles Paint and Varnish Production Club and the Los Angeles Paint, Varnish and Lacquer Association.

All sessions of the symposium will be held in Los Angeles' Roger Young Auditorium. Subjects will include lacquers for wood, metal, and paper; synthetic resins; the use of pentaerythritol in coating resins; and Hercules chlorinated rubber in corrosion-resistant and other protective coatings.

Frank B. Havens, manager, West Coast Pigments Division, American Cyanamid Company, will discuss "Practical Aspects of Pigment Dispersions." J. W. Dayton, Los Angeles manager of the De Vilbiss Company, will show a movie "Making the Most of Spray Painting Methods" and lead a discussion on this subject.

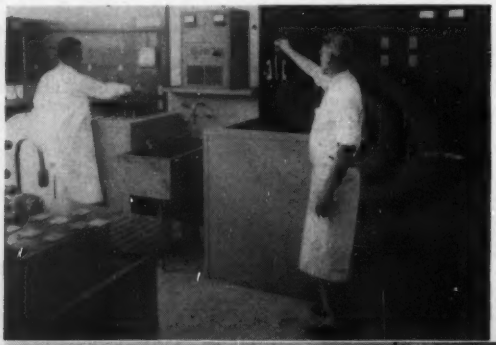


Fig. 5—New and improved electrocleaning materials for use on steel, brass and zinc base die castings are developed in this section of Oakite's new laboratories. Here thorough research is carried out in studying soil removal and its relation to efficient electroplating. Laboratory contains complete electrocleaning and electroplating lines.

Fig. 6—Customers' problems hold the center of the stage in this service department wet room, part of Oakite's new laboratories. These technicians work to solve problems sent to them by Oakite's field representatives from customers' plants. The equipment they use—burnishing and finishing barrels, salt spray cabinets, still tanks, 5-stage spray washing machine to name a few—was especially designed to simulate actual plant conditions right in the laboratory.

W. A. McCormick, Solvents Department, Shell Chemical Corporation, will have as his subject "Solvent Economics in Formulating Lacquers."

Complete details can be secured from the San Francisco and Los Angeles offices of Hercules Powder Company.

Greatly increased mid-continent availability of "Triclene" D trichloroethylene, a modern vapor degreasing solvent for industry developed through Du Pont research, has been accomplished by the **DU PONT COMPANY** through the appointment of five new distributors with six major outlets through the central belt of the nation, from Buffalo to New Orleans. This expanded distribution follows the introduction by Du Pont of an all-purpose grade of "Triclene" D.

The new distribution points are operated by members of the Solvents and Chemicals Group of Chicago, a group of industrial suppliers associated to provide better service to manufacturers and other businesses requiring certain chemicals. Five other members of the same group, operating seven sales outlets in other sections of the central states are also distributors for "Triclene" D.

The new distribution points for the Du Pont solvent and names of the firms operating these outlets are:

Buffalo, N. Y.—Buffalo Solvents & Chemicals Corp.; Detroit, Mich., and Toledo, Ohio—Western Solvents & Chemicals Co.; Grand Rapids, Mich.—Wolverine Solvents & Chemicals Co.; Houston, Texas—Texas Solvents & Chemicals Co.; New Orleans, La.—Southern Solvents & Chemicals Corp.

Members of the Solvents and Chemical Group which have previously distributed "Triclene" D and will continue handling the product are:

Chicago, Ill.—Central Solvents & Chemicals Co.; Cleveland, Ohio—Ohio Solvents & Chemicals Co.; Cincinnati, Ohio, and Louisville, Ky.—Amsco Solvents & Chemicals Co.; Indianapolis and Ft. Wayne, Ind.—Hoosier Solvents & Chemicals Corp.; Milwaukee, Wis.—Wisconsin Solvents & Chemicals Corp.

Roto-Finish engineers have accumulated a mass of information and data which makes it possible for them to minimize the necessity of trial and error selection of barrel finishing equipment and processes. To further facilitate the development of special project machines, the **ROTO-FINISH COMPANY** has recently expanded experimental laboratory facilities. The new laboratory will be devoted to the development and testing of abrasive media and machines designed for special purposes; that is, for finishing parts which ordinarily do not finish well or may not be adapted to finishing with conventional Roto-Finish processes or equipment. The new types of equipment are particularly useful for processing parts which may be held in special fixtures and oscillated or driven through special grinding media, due either to the kind of material that the parts are made from or to the form or shape of the parts in question.

Because of these additional testing facilities and the vast amount of information which has been accumulated by Roto-Finish technicians, the new Roto-Finish processes can be used for a surprising variety of shapes of parts. The successful application of modern finishing methods requires careful considera-

Views of Roto-Finish Company Special Fixture and Special Project Machine Laboratory

tion of all processing factors involved. A well organized experimental program for processing each different part is obviously essential.

For further information or details, write the Roto-Finish Company, 3704 Milham Road, Kalamazoo, Michigan.

NEW POSITIONS

R. W. Englehart, president of Parker Rust Proof Company, has announced the promotion of **DR. R. C. GIBSON** to assistant vice president, working under F. J. DeWitt, vice president.

Announcement was also made of the promotion of **E. W. RICHARDS**, formerly service manager, to the post of technical director and **R. I. PETERSON**, formerly assistant service manager, to the post of service manager.

L. A. Woerner

Automotive Rubber Company, Inc., Detroit, has appointed **L. A. WOERNER** technical assistant to Tim Muelenberg, ARco president.

Mr. Muelenberg stated that Mr. Woerner's assignments with ARco will involve a broad variety of development and research pertinent to industrial, trade, and consumer rubber products and services. His activities will involve working with ARco engineers and facilities in Detroit, Kalamazoo, and Houston. Mr. Woerner comes to ARco especially qualified by experience in rubber product manufacture and application.

Mr. Woerner is a native of Adrian, Michigan, and received his bachelor's degree in chemistry at Adrian College. In addition, he was graduated from the Massachusetts Institute of Technology where he received a master's degree in chemical engineering. He also studied at Akron University and Carnegie Tech, participating in the program for executives at the latter school.

Active in the Professional Engineers Society, Mr. Woerner is also a member of the Rubber Division of the American Chemical Society.

Joseph L. Nelson

E. N. Calhoun, president of Edwin L. Wiegand Company, Pittsburgh, manufacturer of Chromalox electric heating equipment, has announced the appointment of **JOSEPH L. NELSON** as design manager of its Specialty Products Division. Mr. Nelson will be in charge of product styling and will work closely with the company's new product planning group. Chromalox products include radiant, convection and blower-type air heaters; a wide range of industrial heating equipment, electric range and water heating units and other component heating elements for domestic appliances.

Mr. Nelson's previous position was manager of product styling at Magic Chef, Inc., at St. Louis.

Mr. Nelson is a 1943 graduate of the University of Illinois where he majored in industrial design. He served in the Air Force as a first lieutenant in World War II, after which he entered the firm of Walter Dorwin Teague as product designer.

L. DAVID COOK has been named sales engineer for Bart Manufacturing Corporation, according to an announcement made by S. G. Bart, president. He will open a Detroit office, and also provide service for the associated companies, Bart-Messing Corporation and Sel-Rex Precious Metals, Inc.

Mr. Cook will be primarily concerned with development of markets in the mid-West for Bart Lectro-Clad nickel plated steel plates, seamless steel pipe and fittings which are used extensively for corrosion and contamination control in the chemical, pulp and paper and petroleum industries.

Mr. Cook is a licensed professional engineer in the state of Illinois, and a member of the American Chemical Society, American Society for Metals, and A.S.T.M. He was also one of the organizers of the Detroit section of the N.A.C.E .Mr. Cook's office in Detroit will be located at 18050 James Couzins Highway.

Bart-Messing Corporation, of Belle-

(Left to right) L. David Cook, S. D. Wellen, Alexander Korbelak

ville, N. J., has named **S. D. WELLEN** as sales engineer.

Mr. Wellen will give industry technical assistance in developing diversified uses for Sel-Rex Selenium Rectifiers, which are presently being used for electroplating, motor controls, battery chargers, aircraft ground power and testing equipment.

Mr. Wellen is a graduate of Stevens Institute of Technology with a Mechanical Engineering degree, and has an M.S. degree in Electrical Engineering.

ALEXANDER KORBELAK, formerly editor of "Plating" magazine, official publication of the American Electroplaters' Society, has joined Sel-Rex Precious Metals, Inc., as sales manager, according to an announcement made by Morris M. Messing, president.

A graduate of Tufts College, Mr. Korbelak is well known in the electroplating field. He has published a number of technical papers on techniques involved in electroplating difficult metals, and holds several patents on pulsating plating techniques and metal processing.

In addition to his association with "Plating," Mr. Korbelak spent 11 years in the electronics, chemical and metallurgical departments of Westinghouse Electric Corp. and worked as an electrochemist for Seymour Manufacturing Co.

In his new position, Mr. Korbelak will direct sales activity and provide technical service for the complete line of precious metals, plating salts and solutions and special plating chemicals produced by the company.

The establishment of four new sections and other changes in the Development and Research Division of **THE INTERNATIONAL NICKEL COMPANY, INC.**, have been announced by F. L. Laque, vice president and manager of the Division.

The new sections are: Constructional Alloy Steels Section, with **H. V. BEASLEY** in charge; Eletroplating Section, with **CLARENCE H. SAMPLE** in charge; Inco Nickel Alloys Development Section, with **T. E. KIHLGREN** in charge; and Stainless Steel and Heat-Resistant Alloys Section, with **DR. V. N. KRIVOBOK** in charge.

W. Z. FRIEND has been appointed to succeed Mr. LaQue in charge of the Corrosion Engineering Section; **DR. T. P. MAY** and **H. T. PATERSON** have been appointed technical manager and operational manager, respectively, of the "Kure Beach" Corrosion Testing Station near Wilmington, North Carolina; and **W. H. SPARR, JR.**, has been appointed to succeed Mr. Beasley in charge of the Technical Field Section in Pittsburgh, Pennsylvania.

George Rieger

GEORGE REIGER, of Wilmington, Del., has been named by Diamond Alkali Company, Cleveland, Ohio, to lead and coordinate market research activities of its recently-formed Commercial Development Department. He will be primarily responsible for the market research activities of the department — principally projects relating directly to Diamond's continuing diversification and long-term growth.

Mr. Reiger also will be engaged in process evaluation studies, economic analyses, and related departmental functions involved in determining the commercial feasibility of new products and the scope of their market potentials.

Mr. Reiger comes to the Diamond organization from Hercules Powder Company, Wilmington, Del., where he has been assistant manager of its sales research division since February, 1953. For six months during this period, he was "on loan" to the Federal Government, serving as chief of the Thermop'astics Section, Chemical and Rubber Division, National Production Authority, and later becoming acting chief of its Plastics and Coatings Branch.

A native of Kentucky, born in Louisville, Mr. Reiger earned his B.S. degree in chemical engineering at the University of Louisville in 1938. He was awarded an M.S. degree in the same subject at the University of Minnesota, Minneapolis, in 1941.

Mr. Reiger is a member of the Commercial Development Association, the American Chemical Society, and the Chemists Club of New York.

William L. West

The board of directors of Torit Manufacturing Company of St. Paul, Minnesota has announced the election of **WILLIAM L. WEST** as president of that company.

Mr. West is a native St. Paulite, a graduate of Harvard Business School where he obtained a Master's Degree in factory management. He comes to Torit after 15 years association with the Automatic Control Company also of St. Paul. At Autocon he served first as treasurer and, for the past eight years as president.

Mr. West succeeds **EDWARD J. GIRK**, who for quite some time has contemplated resignation from the office of president in order that he might devote his time largely to sales promotional activities. Mr. Girk is returning to the office of vice president and sales manager in which capacity he served for ten years prior to assuming the office of president in 1952.

Other officers elected at the recent board meeting were: **LAWRENCE F. KOERING**, treasurer and **GEORGE A. HUNA**, secretary.

Solventol Chemical Products, Inc., Detroit, has announced the appointment of **DR. HENRY A. GOLDSMITH** as chief chemist; and **BEN RAY** as manager of technical field service, Industrial Chemical Sales Division.

Ben Ray (left), Dr. Henry A. Goldsmith

Dr. Goldsmith, as head of the Research Laboratory, will be responsible for product development and research. In addition, he will assist the Technical Sales and Service Division. Dr. Goldsmith was educated in Europe at the University of Berlin and the University of Genoa, Italy, where he received his degree. Before joining Solventol, he was associated with several Eastern firms.

Mr. Ray brings to his new position several years experience with Solventol and prior to that with Chrysler Corporation where he worked on the surface treatment of metals in the metallurgical and processing laboratories. He received his Chemical Engineering Degree from Wayne University and is a member of the Detroit Chapter of A.S.M.

C. J. WASHING, residing at 851 Hancock Ave., Bridgeport, Conn., has been appointed sales engineer for the Wiretex Manufacturing Co., in the territory covering Connecticut, Rhode Island, New Jersey, Delaware, and Maryland. He will handle the complete Wiretex line of baskets, retorts, muffles, grids, screens, racks for the plating and heat treating industry. Wiretex makes standard and custom baskets to withstand acid, heat, abrasion and exposure. Main office of the firm is at 40 Mason St., Fairfield, Conn.

Robert James Amis

ROBERT JAMES AMIS has been named chief draftsman of the Frederic B. Stevens, Inc., Engineering Department by James Barton, Stevens chief engineer. He fills the vacancy created by the promotion of John Zytell to engineer metal finishing waste disposal equipment and installation.

Before joining Stevens one and a half years ago, Mr. Amis was with A. V. Roe and Company, Ltd., Malton, Ontario, where he helped make the plant layout for the Stevens engineered automatic metal finishing section at Roe's new jet engine plant.

In addition to in-service courses at the University of British Columbia, Mr. Amis also graduated with a major in machine design from the special Rehabilitation School in Windsor, Ontario. He is at present a member of the Detroit Branch, A.E.S.

Appointment of **S. J. STOWELL** as sales manager for Tranter Manufacturing, Inc., of Lansing, has been announced by James R. Tranter, president of the company, manufacturer of Kold-Hold and Kold-Trux refrigeration equipment and Platecoil heat transfer units for industry.

Mr. Stowell has been merchandise manager of Tranter Manufacturing, Inc., since 1953 when he joined the organization. He has had a wide and varied experience in both the refrigerating and heating fields.

The George L. Nankervis Company, engineer and manufacturer of electroplating facilities and industrial testing equipment, has announced the appointment of **ARTHUR F. LISKA** as controller for the company.

Mr. Liska, a native Detroiter, enjoys a background of many years of experience in financial management. Prior to joining Nankervis, he was controller of the Burroughs Corporation.

Five appointments to the editorial board of "Plating," the official publication of the American Electroplaters' Society, have been announced.

The following apointments were for three years: **DR. HAROLD J. WEISNER**, Bendix Aircraft, South Bend, Indiana; **ROBERT D. MILLER**, Electric Auto-Lite, Sharonville, Ohio; and **HOWARD J. McALEER**, Formax, Detroit, Michigan. **JOHN B. WINTERS** of R. O. Hull, Cleveland, Ohio, was named to a one year term as educational liaison member, Cleveland AES branch convention committee; and **DR. ABNER BRENNER**, National Bureau of Standards, Washington, D. C., was named to a two year term as liaison member, Baltimore-Washington AES branch convention committee.

Other members of the editorial board are **EDWIN R. BOWERMAN, JR.**, Sylvania, Long Island, N. Y.; **DANIEL GRAY**, Oneida, Oneida, N. Y.; **WILLIAM C. GEISSMAN**, National Lock, Rockford, Illinois; **FRED FULFORTH**, United Chromium, Philadelphia, Pa.; **CHARLES W. OSTRANDER**, Allied Research, Baltimore, Maryland; **LESLIE C. DIVELEY**, Cutler-Hammer, Milwaukee, Wisconsin; and **P. PETER KOVATIS**, "Plating," Newark, N. J.

John C. Harden

JOHN C. HARDEN has joined the industrial sales and service staff of Wyandotte Chemicals Corporation. Mr. Harden will be located in Toronto to serve the metal industries in Ontario on Wyandotte's metal cleaners and related products. He will report to the company's Montreal office.

Following four years with the Royal Canadian Corps of Signals, Mr. Harden studied chemical engineering at McMaster University. His metal finishing experience includes: 4 years on quality control in the Electroplating Department of Canadian Westinghouse Co. Ltd., 1 year as foreman of the Electroplating and Anodizing Department of Coulter Copper and Brass Co. Ltd., and for the past year he has been foreman of the Electroplating Department of Houdaille-Hershey of Canada Ltd.

Mr. Harden is a member of the American Electroplaters' Society. He has recently been given product application training at Wyandotte Chemicals Corporation Industrial Research Laboratories, and has made a number of inspection trips to well known North American metal finishing plants.

Ranald M. Garrison

Hanson-Van Winkle - Munning Co., Matawan, N. J., manufacturer of electroplating and polishing equipment and supplies, has announced the appointment of **RANALD M. GARRISON** as manager of manufacturing.

Mr. Garrison brings to the company a broad background of manufacturing experience. This includes design and development work in the machinery field as well as production supervision.

Prior to naval service during World War II, Mr. Garrison worked for 9 years as chief engineer, then plant manager of an oil-field equipment company. He has bachelor's degrees in electrical and mechanical engineering—the first from Rice Institute and the second from Cornell University.

According to a recent announcement by S. John Oechsle, Jr., general manager of the Scotts Lane Plant, two new sales engineers have been appointed to the staff of the Protective Coatings Division of Metalweld, Inc., Philadelphia.

They are **KENNETH G. LeFEVRE**, a graduate of the University of Pennsylvania, who was formerly connected with a chemical firm in the Chicago area, and **JOSEPH H. BRISCOE**, who studied engioneering at the U. of Tulsa and was on the staff of a chemical organization.

Both of these men will handle the sale of synthetic coatings, rubber linings, metallizing, and specification coatings in the New England, Eastern and Southern territory serviced by Metalweld.

The appointment of **ARTHUR L. JOHNSON** as sales and service representative for Interchemical's Finishes Division has been announced by D. R. Munsick, Atlantic District manager.

Mr. Johnson is a graduate of Pratt Institute in Chemical Engineering. He entered the employ of the Murphy Varnish Company in 1926 as a lacquer chemist. For several years he was in charge of lacquer production and, for 10 years, director of lacquer research. Murphy Varnish Company was well known for its fine furniture finishes, especially in the piano trade, and was responsible for a number of "Firsts" in furniture finishes including the original patent on non-grain-raising stains.

Arthur L. Johnson

When the Murphy Company was acquired by Interchemical in 1944, Mr. Johnson was assigned to technical service duties, specializing in furniture finishes and Polyfax reproductions, a position held until his recent appointment.

With this excellent technical background, Mr. Johnson will be able to provide on-the-spot technical service for Interchemical's Southern customers.

Mr. Johnson will cover North Carolina and adjacent areas. His headquarters will be in High Point, North Carolina.

Norton Company of Worcester, Mass., has announced several changes among sales personnel. **CHARLES M. WELLONS**, formerly a field engineer at the Philadelphia district office, has been named an abrasive engineer and will be responsible for the Philadelphia territory formerly handled by the late A. Watson Gough.

ROBERT C. DIVOLL, formerly a field engineer in Pittsburgh, has been appointed an abrasive engineer responsible for part of the Pittsburgh territory. **CHARLES R. GARFIELD**, a recent graduate of the Norton Sales Training Course, has been appointed a field engineer at the Pittsburgh District Office.

WILLIAM J. MAHAN has been named field engineer for abrasive grain applications in New England (except for Connecticut), and upper New York State. **JOSEPH F. HARTL**, formerly abrasive grain engineer for all of New England

(Left to right) Charles R. Garfield, Robert C. Divoll, William J. Mahan, Charles M. Wellons.

and upper New York State, has been appointed sales engineer, abrasive grain, for the State of Connecticut.

Gordon B. Richdale, president of Baker & Co., Inc., Newark, N. J., has announced the appointment of **LEONARD CRANE** as manager of the Chicago office. For the past fifteen years Mr. Crane has been a sales representative in the midwest for Baker & Co., Inc., leading refiner and worker of precious metals.

V. J. Dolan & Co., Inc., Chicago, Ill., manufacturer of industrial finishes, has announced the appointment of **DR. HELLMUTH SCHUPP**, to the staff.

Dr. Schupp is a graduate of the University of Zurich, Switzerland and received his degree in cellulose chemistry there. He was employed by some of the leading protective coatings manufacturers in Switzerland, Germany and Holland before coming to this country.

EDWARD J. SOBOTA, well known in the finishing materials and equipment fields for many years, has been appointed sales representative for the National Lacquer and Paint Co., Inc., 7415 South Green Street, Chicago 21, Illinois. He will cover the Ohio and Michigan territory, with a full line of hammer, wrinkle, and enamel finishes, as well as primers, surfacers, and thinners.

Mr. Sobota will be located at 4537 N. Lockwood, Toledo 12, Ohio.

G. E. MONTGOMERY has assumed his new post of Michigan District Engineer for the Burdett Manufacturing Company of Chicago, manufacturer of industrial gas-fired ovens and finishing equipment. He replaces C. E. Fitzgerald who was promoted to general sales manager.

Mr. Montgomery will headquarter with Roy E. Snypp Co., sales representative for Burdett, at 18804 Conant Avenue, Detroit 34, Michigan.

Mr. Montgomery is well versed on industrial heating and processing equipment.

MEETINGS

The **FIRST ANNUAL EDUCATIONAL SESSION AND BANQUET** of the **BUFFALO BRANCH, A.E.S.**, will be held on October 2 at the Markeen Hotel, Buffalo, New York.

The Educational Session, starting at 1:00 p.m., will feature the topics:

"Periodic Reverse Copper Plating," by Myron Ceresa, Westinghouse Electric Corporation.

"A Method for the Evaluation of Cutting Power of Various Tumbling Media," by H. A. Fudeman, Trico Products Corporation.

"Barrel Plating," by B. G. Daw, Lasalco, Inc.

A social afternoon for the ladies has been planned.

The banquet will be held at 7:00 p.m., followed by music and dancing.

Committees for the affair are as follows: Educational; Robert F. Hofmann, Bert Kirchoff, James Moneypenny; Entertainment; Dr. A. A. Janis, F. Rudolph; Publicity; H. A. Fudeman, Eric G. Sampson; Tickets and Program; Anthony Nigro, Leon Nowak; Welcoming Committee; Bill Hart, Joe Ruff, C. J. Wernlund, Mrs. W. Hart, Mrs. B. Kirchoff; Ladies' Program; Mrs. James Moneypenny, Mrs. L. A. Davis, Mrs. Anthony Nigro, Mrs. R. E. Campbell, Mrs. Leon Nowak, Mrs. E. G. Sampson, Mrs. Joe Ruff, Mrs. C. J. Wernlund.

DR. J. S. LONG, educational director of Devoe & Raynolds Co., Louisville, Ky., will present the Joseph J. Mattiello Lecture at the Annual Meeting of the Federation of Paint and Varnish Production Clubs to be held at the Palmer House,

Chicago, Ill., November 18, 19, 20, 1954.

Dr. Long, one of the paint industry's most widely known technologists, has traveled up to 75,000 miles a year, giving talks to technical, professional, and service organizations.

Dr. J. S. Long

Because of his outstanding work in research Dr. Long was voted one of the outstanding scientists in the Paint, Varnish, and Plastics field by the Chicago Section of the American Chemical Society in 1947. In 1952 he was elected a Fellow of the Royal Society of Arts in England. In the same year he was appointed "Distinguished Professor" at the University of Louisville.

He has been an active and enthusiastic worker with both the Educational and Research Committees of the Federation. In 1943 he conceived the idea of a coordinated program for the Federation on the subject of "Film Formation — Film Properties — and Film Deterioration." This was adopted by the Federation and has been under study for the past 10 years.

In June, 1949 Dr. Long represented the Federation at the Industrial Fair at Basel, Switzerland and at the Conference of the Oil and Colour Chemists' Association at the Isle of Bute, Scotland. He presented a paper on "Film Formation" at both of these meetings.

Dr. Long received the Ch.E. degree in 1913, and the M.S. degree in 1915 from Lehigh University. He did some graduate work at Columbia University and earned his Ph.D. degree at Johns Hopkins University in 1921.

He entered the teaching profession and came up through the ranks in the Chemical Department at Lehigh, being successively assistant, instructor, assistant professor, associate professor, and profess of Chemistry. He also served as chemist and consultant for the Chester Enameling Co. of Chester, Pa.

In 1927 he organized a cooperative research agreement between Lehigh University and Archer-Daniels-Midland Co., William O. Goodrich Co., the Raybestos-Manhattan Co., the New Jersey Zinc Co., the Armstrong Cork Co., the Columbus Union Oil Cloth Co., and others. These companies contributed to a common research fund of which Dr. Long served as the research director.

He is co-author of "Chemical Calculations" (with H. V. Anderson) McGraw-Hill Co.; "Qualitative Analysis" (with H. V. Anderson and T. H. Hazlehurst) Prentice-Hall Co.; and "Elementary Experiments on Non-Metals" (with D. S. Chamberlain and M. K. Buckley).

Dr. Long is a Fellow of the American

Recently a special meeting of the **JAPANESE ELECTROPLATING SOCIETY** was held in Tokyo. A feature of this occasion was the celebration of the 70th birthday of Hisaichiro Hattori, a leader in both the practice and teaching of electroplating in Japan. Mr. and Mrs. Hattori can be seen in the third row, center, of the photograph.
(Photo courtesy "Nihon Mekki Kyokai" Tokyo, Japan)

Institute of Chemists. He is a member of Theta Xi, Tau Beta Pi, Sigma Xi, Omicron Delta Kappa, Society of Chemical Industry of England, Textile Chemists Association, American Oil Chemists Association, American Concrete Institute, and American Chemical Society. He is also a past chairman of the Lehigh Valley Section of the American Chemical Society and the Paint and Varnish Division of ACS.

Last October he received the George Baugh Heckel award for "continuous service to the paint industry." The award is presented by a committee representing the National Association of Paint, Varnish & Lacquer Manufacturers and the Federation of Paint & Varnish Clubs.

NECROLOGY

F. LLOYD WOODSIDE, 58, president of Park Chemical Co., 8074 Military, Detroit, Mich., died August 9. He had been president of the company since 1942, and before that time was associated with the following companies: Studebaker Corp. 1911-1924; Craine Schrage Steel Co. 1924-1929; Ludlum Steel Co. 1929-1935; and Climax Molybdenum Co. 1935-1942. He was a brother of W. P. Woodside, chairman of the board of Park Chemical Co.

ADRIAN D. JOYCE, founder and chairman of the board of the Glidden Company, died on August 25. He would have been 82 years old on November 18.

Although successful and secure when he was 45 years old, Mr. Joyce turned aside from security and founded a new enterprise which was to become the Glidden Company. At first the Glidden Company was entirely concerned with paint and varnish manufacture, but Mr. Joyce sought diversification for the company, and through his efforts brought Glidden leadership in many fields, among them food products, protective coatings, naval stores, and soya products. Today the Glidden Company makes paints and varnishes, food products of many kinds, vegetable oils, chemicals, pigments, pharmaceuticals, animal and poultry feeds, naval stores, soya products, powdered metals, and many other products for the American home and industry.

The company is one of the two or three largest paint makers in the world, and one of the biggest producers of margarine. It is one of Cleveland's largest enterprises. It has more than 37 operating units and 28 laboratories strategically located from coast to coast. It is a carefully balanced, diversified, and yet completely integrated organization. It is a monument to Adrian Joyce's skill and judgment.

meetings
OF INTEREST TO FINISHERS

Oct. 3-7. Electrochemical Society, Fall Meeting, Boston, Mass.

Oct. 11-13. Fall Convention, American Oil Chemists Society, Radisson Hotel, Minneapolis, Minn.

Oct. 12-15. Eighth National Chemical Exposition, American Chemical Society, Coliseum, Chicago, Ill.

Oct. 12-15. South Central Regional Meeting, National Association of Corrosion Engineers, Dallas, Texas.

Oct. 30-Nov. 5. 36th National Metal Congress and Exposition, American Society for Metals, International Amphitheatre, Chicago, Ill.

Nov. 18-19. Fourth Annual Western Regional Conference, National Association of Corrosion Engineers, Los Angeles, Calif.

Nov. 18-20. Federation of Paint and Varnish Production Clubs, Annual Meeting, Palmer House, Chicago, Illinois.

Mar. 26, 1955. Second Annual Tri-State Regional Meeting, American Electroplaters' Society, Columbus, Ohio.

June 20-23, 1955. 42nd Annual Convention and 4th Industrial Finishing Exposition, American Electroplaters' Society, Municipal Auditorium, Cleveland, Ohio.

The Finishing Touch **By J. A. Patterson**

"Now you want the green gold changed to yellow gold to match your dress!"

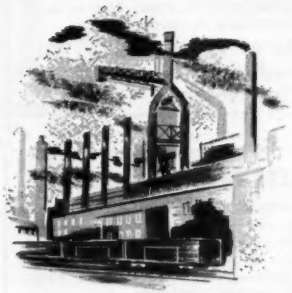
NEW BLACOSOLV®

DEGREASING SOLVENT

Proved in the field with Dramatic Results

* Ends Need for Constant Testing

Ideal for Aluminum—or Aluminum in Combination with other Metals



New BLACOSOLV degreasing solvent has been formulated specifically to meet the requirements demanded by increased use of aluminum, new alloys, and acid producing lubricants. Does not affect or stain any metals . . . will not break down . . . easily distilled from oil and soils.

Adds to the Life of Degreasing Machines

The high-stability of BLACOSOLV degreasing solvent is as gentle with the metals in your degreasing equipment as with the metals to be cleaned. This plus-economy factor is as important as the solvent efficiency, uninterrupted service and better production you will enjoy with the New BLACOSOLV.

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INDUSTRIAL SALES ENGINEERS

Situation open—previous or current sales experience in vapor degreasing equipment, alkali washers, dryers, trichlorethylene and perchlorethylene required.

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Clark Township • Rahway, N. J.

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37. Tumbling Equipment. Grav-I-Flo Tumbling Equipment, accessories, and supplies are described in a catalog available from Grav-I-Flo Corp., Dept. PF-10, Sturgis, Michigan. Machines, materials, and methods for employing the Grav-I-Flo Tumble Finishing Process for deburring and finishing metal parts are described in the catalog. The company will process samples of metal products and recommend finishing procedures.

38. Finishing Ovens. A catalog issued by The Lanly Co., 770 Prospect Ave., Cleveland, Ohio, describes the various types and designs of dryers and paint baking ovens designed and manufactured by the company. Included are details on continuous laydown dryers, vertical hollow ware dryers, A-type continuous automatic paint baking ovens, three-pass ovens, and continuous wicket-type ovens.

39. Degreasing Solvent Folder. Available from E. I. du Pont de Nemours & Co., Inc., PF 84, Electrochemicals Dept., Wilmington 98, Del., is a folder outlining the characteristics and performance of Du Pont "Triclene" D, the all-purpose solvent for vapor degreasing. The folder stresses the solvent's resistance to attack from various materials, and its stability in difficult degreasing jobs.

40. Finger-Buffs. Churchill Type 20-RD Sisal Buffs and Type 302 Cloth Buffs, available in sizes from 6 to 18 inches diameter, are described in a catalog available from Geo. R. Churchill Co., Inc., Dept. PF, Hingham, Mass.

41. Unichrome Bright Nickel Plating Process. Quick facts on the Unichrome Bright Nickel Process are listed in a folder available from United Chromium, Inc., 100 E. 42nd St., New York 17, N. Y. Characteristics of the process and the deposit as well as advantages to be obtained through its use are included in the folder.

42. Ty-Bond Data Sheet. A folder describing Cowles' Ty-Bond amorphous and crystalline non-sludging zinc phosphate coatings, is being distributed by Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio. The folder describes the various Ty-Bond products available from the company and lists specific properties and suggested applications of the coatings.

43. Disk Wheels. Descriptive literature on Nu-Tex Depressed Center Disk Wheels for cutting, roughing, grinding, and finishing is available from Atlantic Abrasive Corp., 524 Pearl St., South Braintree 85, Mass.

44. Presenting the Ionic Gun. Ionic high potential paint spraying equipment is illustrated and described in a brochure available from Scientific Electric Co., 111 Monroe St., Garfield, New Jersey. A summary discusses articles to be coated, coating materials, power requirements, production, handling equipment, maintenance, spray equipment, hot spray and engineering services.

45. Rollacoating Literature File. Entitled, "Cost-Cutting Ideas in Finishing," a fact file containing a number of literature releases on various phases of paint application by roller coating methods is being distributed by Gasway Corporation, 6463 N. Ravenswood Ave., Chicago 26, Ill. Bulletins included in the file are entitled, "Mass Production Coating of Continuous, Coiled Metal Strips," "Typical Metal Sections Formed After Rollacoating," "Gasway Rollacoat Finishers." The various bulletins describe how to paint finish flat sheets and coiled strips prior to forming by means of the roller coating process, listing at the same time the advantages to the user.

46. Acid-Resistant Tanks, Hoods, and Containers. Iolyte laminated plastic tanks, crocks, exhaust hoods, pipes, and other products, are described in an illustrated price list available from Schori Process Div., Ferro-Co Corp., 8-11 Forty-Third Rd., Long Island City 1, New York. Also included is a table of chemical resistance of Iolyte to a wide variety of chemicals at various concentrations and temperatures.

47. Barrel Plating Equipment. George A. Stutz Mfg. Company has announced a Barrel Plating equipment catalog for 1955. The line includes heavy duty production barrels, single and multiple plating units, cylinder loading and unloading stands, alkali cleaning and rinsing units, portable plating barrels featuring a new design. Power conversion equipment is also included. The catalog may be obtained by writing to George A. Stutz Mfg. Co., 1647 Carroll Avenue, Chicago 12, Illinois.

USE CARD FOR FREE LITERATURE

48. Stop Paint Overspray. Explaining how RP Paint Arrestors are used to remove paint overspray solids from air exhausted from paint spray areas, a brochure available from Research Products Corp., 1015 E. Washington Ave., Madison 10, Wis., contains illustrations and descriptions of various applications now in use, and includes diagrams showing how the banks of a number of disposable RP Paint Arrestor pads were formed to handle specific operations.

49. Fulflo Filters, manufactured by Commercial Filters Corp., Melrose 76, Mass., are illustrated and described in a condensed catalog available from the company. Those listed, of interest to the finishing industry, are the Multitube Steel Filters, the Hi-Capacity Steel Filters, the Horizontal Steel Filters with Rapid-Refill Cage, Rubber-Lined Steel Filters, and the Multitube Stainless Filters. Dimensions and specifications are given.

50. Rectifiers and Regulators. A special Stevens Electrical Equipment Bulletin Supplement is now available, featuring three newly designed rectifiers and voltage regulators for the metal finishing industry. In all 55 different combinations of cabinet sizes, current and voltage output are available in the new series. Each is listed in one of several charts included in the supplement. A copy is available from the nearest Stevens office or Frederic B. Stevens, Inc., 1800 18th St., Detroit 16, Mich.

51. Packaging Material. Kushion-Kraft multiple ply packaging material for use in packing to protect surface and finishes is described in detail in an illustrated folder available from Jiffy Mfg. Co., Hillside, N. J. A number of industries in which this material is used are listed in the folder.

52. Protective Clothing. Surety Industrial Aprons and other protective apparel (sleeves, leggings, spats, gloves), are described in a bulletin available from the Surety Rubber Co., Carrollton, Ohio. The bulletin contains small samples of a number of the rubber and vinyl plastic materials available from the company for use in manufacturing various items of protective clothing. Resistance of the various materials to chemicals of all kinds is described.

53. Backstand Idler. The Fenlind L-69 Backstand Idler is described in an illustrated data sheet available from Fenlind Engineering Co., 5602 Pike Rd., Rockford, Ill. Design characteristics of the idler and corresponding advantages obtained through its use in connection with abrasive belt finishing are described in detail.

54. Immersion Steam Boiler. The Sellers Model 46 horizontal one pass immersion fired steam boiler, designed specifically for automatic gas firing, is described in an illustrated catalog available from Sellers Engineering Co., 4876 N. Clark St., Chicago 40, Ill.

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55. Wet-Blasting Unit. Literature describing the new wet-blast unit which can be operated in conjunction with a 3 h.p. air compressor is available from The Cro-Plate Company, Inc., 747-6 Windsor St., Hartford 5, Conn., manufacturer of the Pressure Blast line of wet-blast machines. The catalog explains the various design and operational features of the unit, and contains application data and "before and after" photographs.

56. Electroplating Processes. Hanson-Van Winkle-Munning Co., Matawan, N. J., offers a four-page, two-color bulletin on its electroplating processes. The bulletin describes and lists key characteristics of seven nickel plating processes, three zinc, one cadmium, one copper (with and without periodic reverse current), two silver, one lead and one bright ternary alloy plating process. Included in the bulletin is a list of 10 services available to H-VW-M customers, including the provisions H-VW-M has made for its customers to train platers, test processes and equipment, and advise on setting up and sequencing metal finishing operations. To get bulletin P-100, write to John S. Karinja, Hanson-Van Winkle-Munning Co., Matawan, N. J.

57. Industrial Wipers. A descriptive folder available from Kimberly-Clark Corp., Neenah, Wis., outlines the many industrial applications for three kinds of wiping tissues manufactured by the company. Kimwipes 1300 general purpose wipers are designed for cleaning scientific glassware, light machinery, metal parts in process, painted, enameled, and varnished surfaces, plastic products. Kimwipes 900-S are specified for cleaning of lenses, microscope slides, and goggles. Kimwipes 900-L can be used for laboratory clean-up, inspection wiping, and cleaning of delicate equipment.

58. Power Spray Washers. Peters-Dalton, Inc., 17908 Ryan Road, Detroit 12, Mich., has published a 16-page brochure (Technical Bulletin No. 301) entitled "Power Spray Washers." This illustrated booklet groups and discusses all types of power spray washers, their layouts and applications. Fifteen engineering drawings, incorporating only the essential features of a number of commonly used types of washers, are included.

59. Testing Instruments. An illustrated folder describing Micrometers, Basic Weight Scales, and a Bursting Strength Tester supplied by the company is available from E. J. Cady & Co., 124 N. LaSalle Street, Chicago 2, Illinois.

60. Corrosion Resistant Protective Coating. Grade "RA" Black Paint and other Rubalt products designed for service as protective coatings for resistance to acids and alkalis, mineral oils, and harsh environmental conditions, are described in a folder available from Alfred Hague & Co., 227 34th St., Brooklyn 32, N. Y.

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